Saline Ground-Water Resources of the Tularosa Basin, New Mexico

United States Department of the Interior

Office of Saline Water • Research and Development Progress Report No. 561

Research and Development Progress Report No. 561 • July 1970

Saline Ground-Water Resources of the Tularosa Basin, New Mexico

By United States Department of the Interior, Geological Survey, Albuquerque, New Mexico, for the Office of Saline Water, Chungming Wong, Director; Joseph J. Strobel, Chief, Desalting Feasibility and Economic Studies Staff; Milton S. Sachs, Project Engineer

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FOREWORD

This is one of a continuing series of reports designed to present accounts of progress in saline water conversion and the economics of its application. Such data are expected to contribute to the long-range development of economical processes applicable to low-cost demineralization of sea and other saline water.

Except for minor editing, the data herein are as contained in a report submitted by the contractor. The data and conclusions given in the report are essentially those of the contractor and are not necessarily endorsed by the Department of the Interior.

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Acknowledgments

This report presents the results of a study of the saline-water resources of the Tularosa Basin conducted by the U.S. Geological Survey in cooperation with the New Mexico State Engineer and the U.S. Office of Saline Water, Department of the Interior. An economic analysis of the development and use of the saline-water resources was conducted by the New Mexico Water Resources Research Institute under the direction of Dr. H. R. Stucky, in cooperation with the Office of Saline Water and the Office of Water Resources Research. The results of the economic study are given in a separate report.

Some of the information on saline water in deeply buried consolidated rocks used in this study was obtained during a concurrent regional study on the saline-water resources of the Rio Grande Basin by T. E. Kelly, B. N. Myers, and L. A. Hershey of the U.S. Geological Survey for the U.S. Office of Saline Water.

Many data used in this report were taken from the files of the U.S. Geological Survey; other data were supplied by the city of Alamogordo, Holloman Air Force Base, White Sands Missile Range, White Sands National Monument, and ranchers in the area. Many of these data are listed in the Appendix tables and the remainder is on file at the U.S. Geological Survey offices in Albuquerque, New Mexico.

The author is grateful for review and comments regarding the report by Dr. Zane Spiegel, State Engineer Office, and Dr. H. R. Stucky, Dr. William King, and Dr. C. E. Jacob, New Mexico Water Resources Research Institute. This study was conducted under the supervision of W. E. Hale, District Chief, New Mexico District, U. S. Geological Survey. General direction of the study was provided by Mr. Milton S. Sachs, U.S. Office of Saline Water, Department of the Interior, Washington, D. C.

Abstract

U. S. Geological Survey
SALINE GROUND-WATER RESOURCES OF THE TULAROSA BASIN, NEW MEXICO
J. S. McLean, Albuquerque, New Mexico
OSW Report No. 561, 128 pages, 34 figures, 69 references

This report describes the location, extent, and quality of saline ground water in the Tularosa Basin, a north-trending elongated, intermontane, desert basin in south-central New Mexico. There are no through-flowing streams; runoff from the bordering mountains flows to ephemeral lakes in the center of the basin.

Fresh-water supplies in the Tularosa Basin are limited; however, large volumes of saline ground-water underlie most of the basin.

Consolidated rocks ranging from Precambrian through Cretaceous in age form "bedrock" aquifers in the basin. Where these rocks are exposed in the mountains bordering the basin, and in the north part of the basin, they may yield up to 150 gallons per minute, although yields are usually less than 20 gpm. Water at shallow depths in these rocks usually contain 1-3 g/l. Water quality deteriorates with depth, and more than 35 g/l water is present in some rock units. Few wells have penetrated these rocks beneath the alluvial deposits in the central part of the basin, where well yields and water quality are generally unknown.

The most widely developed aquifer in the basin is the alluvial fill of Tertiary to Holocene age which exceeds 6,000 feet in thickness in the southern part of the basin. Well yields of as much as 1,400 gallons per minute have been measured. Fresh water lenses occur in the alluvial fill adjacent to the mountains on the east and west sides of the southern part of the basin. The water below the fresh-water lenses in the alluvial fill increases in salinity with depth. Salinity also increases toward the center of the basin.

The altitude of isosaline surfaces and thickness of the saline-water zones are shown on maps of the entire basin and of the following detailed areas within the basin: Alamogordo, Tularosa, Carrizozo, and the western margin of the basin.

*Tularosa Basin/ *saline ground-water/ desalination/ saline-water interfaces/ *saline-water aquifers/ ground-water movement/ transmissivity/ specific yield/ water consumption/ saline-water systems/ geohydrologic units/ water table/ New Mexico State Engineer cooperator/ OSW cooperator/

Saline ground-water resources of the Tularosa Basin

New Mexico

By

J. S. McLean

Introduction

Saline ground water in the United States has long been considered a nuisance and hazard to recovery from fresh-water aquifers. However, as conventional surface and fresh underground-water supplies become locally depleted or incrementally more expensive, desalted ground water may prove a viable alternative for municipal water supplies. As saline ground water underlies many of the country's water-short basins, practical conversion by desalting would have significant impact in future water-supply planning.

In order to evaluate the potential of the saline-water resource, first must come study of the availability and the economics of recovery and subsequently its conversion to fresh water. The Tularosa Basin, a north-trending desert basin in south-central New Mexico, is one of several areas in that state where fresh water supplies are meager but saline water is abundant, and where water-supply shortages threaten future growth. It was therefore selected for a pilot study to determine (1) the availability and characteristics of the saline ground water; this part of the study was a cooperative effort of the Office of Saline Water, Department of Interior (OSW), the U. S. Geological Survey and the State Engineer of New Mexico; (2) the economics and potential for use of the basin's saline ground water in meeting needs in specific areas--Alamogordo, Tularosa, Carrizozo, White Sands National Monument, and military installations (fig. 1); this part of the study is being prepared by the New Mexico Water Resources Research Institute for the OSW, and is scheduled for completion in late 1970.

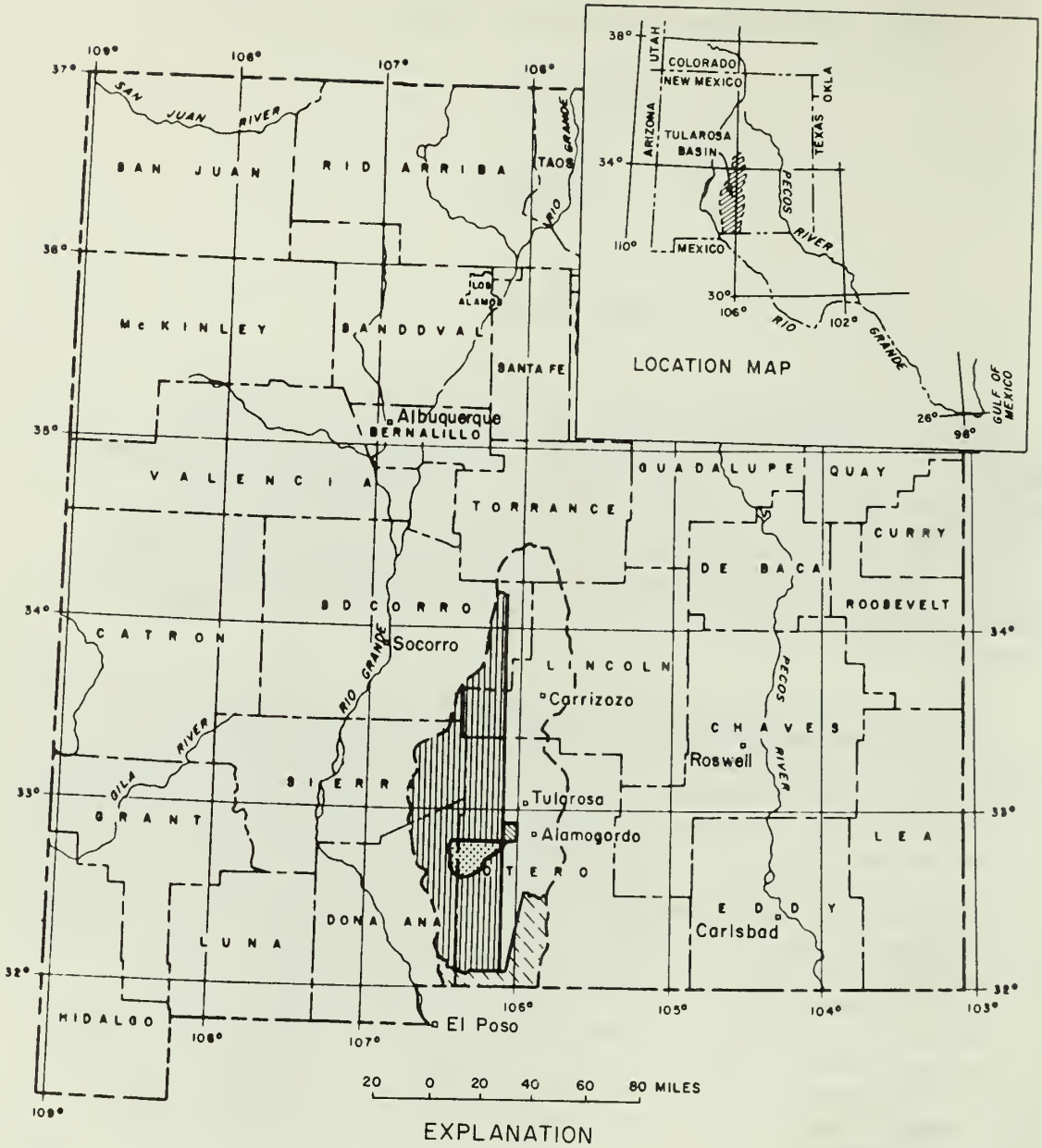

Figure 1.--Index map

In addition to providing data for use in the second part of this comprehensive analysis, this study complements a study of the saline ground-water resources of the Rio Grande Basin, of which the Tularosa Basin is a part. The Rio Grande study is being prepared concurrently by the U. S. Geological Survey for the OSW and is to be published as OSW Research and Development Progress Report No. 560.

The objectives of the Tularosa Basin study are to define the extent and volume of saline water of different ranges in concentration and the ease with which saline water can be recovered, including yield of wells. Particular emphasis was placed on the occurrence of saline ground water in the specific areas referred to previously.

Summary, conclusions, and recommendations

Fresh surface-water and ground-water supplies in the Tularosa Basin are limited and may be insufficient for future needs. Large bodies of saline ground water that underlie the basin may provide an economic supplemental water resource. This report describes these saline-water resources as an initial step in evaluating the potential of desalting in the economy of the region.

Ground water in the Tularosa Basin grades from fresh water--defined as water containing less than 1 g/l (grams per liter) dissolved solids--in the permeable alluvial-fan deposits adjacent to the mountain fronts to water containing more than 100 g/l dissolved solids in the less permeable playa deposits in the center of the basin. The saline-water body is subdivided for mapping purposes on the basis of total dissolved-solids content into the 1-3, 3-10, 10-35, and greater than 35 g/l zones. Normal sea-water salinity is about 35 g/l; all water with more than 35 g/l dissolved solids content is classified as brine in this report. About 2 percent of the saturated deposits in the basin contain water with less than 35 g/l dissolved solids. Less than 0.2 percent of the saturated deposits contain fresh water.

Two significant fresh-water zones occur in the Tularosa Basin. The zone on the east side of the basin, adjacent to the Sacramento Mountains (fig. 2), from Alamogordo to about 15 miles south of Grapevine Canyon is being developed as a potable water source for Holloman Air Force Base Headquarters, White Sands National Monument Headquarters, and the city of Alamogordo. In addition, a few scattered irrigation and domestic wells withdraw less than 200 acre-feet of water per year from the fresh-water zone on the east side of the basin. This zone is about 1,200 feet thick and contains about 3 million acre-feet of water. The fresh-water zone on the west side of the basin, adjacent to the San Andres, Organ, and Franklin Mountains from near Ash Canyon on the north to the Texas border on the south, contains about 7 million acre-feet of water and is presently being used as a source of potable water for White Sands Missile Range Headquarters.

Saline ground-water containing 1-3 g/l dissolved solids is used for municipal, domestic, stock, and irrigation supply in the Alamogordo, Tularosa, and Carrizozo areas. Ground water containing 3-10 g/l is used for livestock in the central part of the basin. Ground water containing more than 10 g/l dissolved solids is not used. Unconsolidated deposits in the Tularosa Basin contain about 30 million acre-feet of 1-3 g/l saline water. The quantities of water in the 3-10 and 10-35 g/l zones are of the same order of magnitude.

The following areas are known to be capable of producing significant quantities of saline water: The area west of Highway 54 and south of Alamogordo; areas west and northwest of Alamogordo; areas northwest and southwest of the irrigated area near Tularosa; the central part of the Tularosa Basin east and southeast of White Sands Missile Range Headquarters; and an area in sec. 2, T. 17 S., R. 4 E.

Areas for which information is sparse, but which may yield significant quantities of saline water include: The areas south and east of Orogrande; the area west of Highway 54 between Tularosa and Three Rivers; the alluvial fans east of the San Andres Mountains between Rhodes Canyon and Ash Canyon; and the area bordering the fresh water zone between Ash Canyon and White Sands Missile Range Headquarters on the east. The extent, thickness, quality, and yield of saline water in these areas would have to be determined by test drilling.

Wells and well fields which are abandoned because of deteriorating water quality may possibly be used to supply saline water. Wells drilled for the production of saline water, however, should be located and pumped in such a manner that interference with fresh water supplies is minimized. This can be accomplished by locating the well field far from the potable water area or by spacing and pumping fresh- and saline-water wells so the fresh-saline interface remains stable. This would require carefully controlled pumping in both zones.

The intertonguing of saline-water units and the heterogeneity of the alluvial deposits make it difficult to find areas where large quantities of water of a specific quality might be obtained. As pumping progresses over months or years, the total dissolved solids in a well may change due to the influx of either more saline or less saline water. The relative proportions of individual ions may likewise change. Well fields for saline-water withdrawal should be large enough to allow the mixing of water to maintain the desired feed water.

Waste water from desalting plants can be disposed of by evaporation in playa lakes, by evaporation and infiltration in the central part of the basin, or possibly by deep-well injection. Evaporation-infiltration disposal sites should be located in areas where shallow ground water is already too saline for possible desalting. Deep injection of wastes, while more expensive, would reduce the possibility of contamination of areas of less saline water. This disposal method might be necessary in the south-central part of the basin.

Description of the basin

Physical features

The Tularosa Basin, 6,500 square miles in extent, is an elongated desert valley which comprises about 5 percent of the Rio Grande drainage basin (135,000 square miles) in the United States. Land-surface altitudes within the basin range from less than 4,000 feet in the barren alkali flats in the south-central part to over 12,000 feet at the crest of Sierra Blanca Peak. The present topography of the basin results from north-trending, nearly vertical, normal faults which were active in middle to late Cenozoic time. These faults created a structural trough, or graben, that is bounded on the west by the Franklin, Organ, and San Andres Mountains, the Sierra Oscura, and Chupadera Mesa; on the east the graben is bounded by the Hueco and Sacramento Mountains, Sierra Blanca, Tucson Mountain, Patos Mountain, and Gallinas Peak. The basin is bounded on the north by a broad, high topographic divide and on the south by an almost imperceptible divide separating it from the Hueco Bolson in Texas.

The floor of the basin slopes gently southward and contains many depressions, or playas, that have no drainage outlet. These depressions form ephemeral lakes during rainy periods; when dry they commonly become alkali flats.

Precipitation and runoff

Mean annual precipitation in the basin ranges from about 10 inches in the central part to about 25 inches on the higher mountain slopes. Maximum rainfall occurs during winter storms from January through March and during summer thunderstorms from July through September.

Precipitation on the mountain slopes surrounding the basin runs off in intermittent streams that drain toward the center of the basin, or moves as ground-water flow through alluvial deposits in the bottom of stream channels. At the apex of each alluvial fan some of the runoff infiltrates to the ground-water body. Runoff passing beyond the toes of the alluvial fans flows out into the basin and evaporates on the playas ("dry lakes" or "alkali flats"), depositing the dissolved solids. Accretion to the ground-water body occurs mainly during winter storms. The intense summer thunderstorms produce high runoff of such short duration that little water is recharged to the ground-water body.

Use of water

Holloman Air Force Base, White Sands Missile Range Headquarters, and the community of Alamogordo are the chief users of fresh water in the Tularosa Basin.

The city of Alamogordo reportedly used 1,144 million gallons (3,520 acre-feet) of water per year in the period 1962-1966. Although water from some sources contained more than 1 g/l dissolved solids, the water delivered to the consumers usually contained less than 1 g/l. About 338 million gallons (1,040 acre-feet) per year was obtained by pipeline from Bonito Lake, northeast of the basin. An additional 616 million gallons (1,890 acre-feet) was obtained from developed springs in La Luz and Alamo Canyons. The remaining 190 million gallons (580 acre-feet) was obtained from wells drilled in alluvial fan deposits between Alamogordo and La Luz.

Although the quality of water in Bonito Lake and the Alamo Canyon springs is good, the supply of water from these sources is limited. Increases in demand in excess of these supplies will be met by increased pumping from the La Luz wells which yield water containing about 1,500 mg/l (milligrams per liter) dissolved solids. Thus, the quality of water distributed can be expected to deteriorate as demand rises, until sources of better quality water are developed.

Alamogordo is now developing a new source of ground water in alluvial fans west of the mouth of Grapevine Canyon, 18 miles south of the city. Plans now call for the installation of wells and of a pipeline to the city of Alamogordo.

Holloman Air Force Base used 1,480 million gallons (4,540 acre-feet) of water during 1968, of which 494 million gallons (1,520 acre-feet) per year was obtained from the city of Alamogordo. The water obtained from Alamogordo represents a mixture of water from other sources plus water from the Bonito Lake pipeline. The remaining 986 million gallons (3,020 acre-feet) per year was withdrawn from wells in the Boles, San Andres, and Douglas well fields, about 8 miles south of Alamogordo. As demand increases, wells are being drilled south and southeast of the older Boles well field.

White Sands Missile Range obtains its fresh-water supply from alluvial deposits in the reentrant between the Organ and San Andres mountains (fig. 2) and along the mountain front. Total ground water pumpage in 1967 was 925 million gallons (2,840 acre-feet); in 1968 it was only 800 million gallons due to abnormally high summer rainfall.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PREPARED WITH THE COOPERATION OF
THE NEW MEXICO STATE ENGINEER OFFICE AND
THE OFFICE OF SALINE WATER
DEPARTMENT OF THE INTERIOR

NEW MEXICO
SALINE GROUND-WATER INVESTIGATION

EXPLANATION
+2000
Bedrock contour
Shows altitude of the top of Precambrian rocks. Contour interval 2,000 feet. Datum is mean sea level. (Adapted in part from Foster and Stipp, 1961.)
Dissolved-solids content in mg/l. ( ) around number indicates value is specific conductance, in micromhos at 25°C.
3040 Py
Well
Spring
Principal aquifer:
Qb, Quaternary basalt; TKu, volcanic rocks of Tertiary or Cretaceous age; Ku, Cretaceous rocks, undivided; Kmv, Mesaverde Group; Kd, Dakota Sandstone; TKc, Cub Mountain Formation of Bodine (1956); Kd, Dockum Group; Psa, San Andres Limestone and Glorieta Sandstone; Py, Yeso Formation; Pa, Abo Sandstone; Pb, Bursum Formation; PPu, Pennsylvanian rocks, undivided; PPm, Madera Limestone; pC, Precambrian granite; (F) indicates fractured rock.
Watershed boundary
C C'
Line of diagrammatic section
Section A-A' shown on figure 3
Section B-B' shown on figure 4
Section C-C' shown on figure 13
Section D-D' shown on figure 25
Section E-E' shown on figure 26
Section F-F' shown on figure 27
Section G-G' shown on figure 28
Section H-H' shown on figure 29
Section I-I' shown on figure 30
106°00'
R.6E.
R.12E.
T.25S.
T.26S.
34°00'
33°00'
32°00'
CIBOLA NATIONAL FOREST
NEW MEXICO BASE LINE
GRAN QUIVIRA NATIONAL MONUMENT
CHUPADERA MESA
WHITE SANDS NATIONAL MONUMENT
Holloman Air Force Base
White Sands Missile Range Headquarters
LAS CRUCES
Tularosa
Alamogordo
SACRAMENTO MOUNTAINS
SOUTHERN PACIFIC
FRANKLIN MOUNTAINS
RIO GRANDE
Corrizozo
Carrizo Mtn.
Gallinas Pk
Oscura
Hogel
Sierra Blanca Pk
Three Rivers
Cox Canyon
Escondida
Orogrande
Newman
Organ
Organ Pk
San Augustin Pass
San Andres Pk
Lake Lucero
Valmont
Patos Mtn.
Tucumcari Mtn.
Capitol Pk
Dacura Pk
Washington Pass
Scott
Bent
Jarilla
Mescalero
Skillet
Cuba
Lee
Cox
Cap
Ash
Ski
Ova
Ora
Ex
Ba
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Ne

Surface water in the Tularosa Basin is meager, but the Rio Tularosa east of the community of Tularosa supplies about 6,880 acre-feet per year for irrigation of cropland. About 8,000 acres are irrigated with the slightly saline surface water from the Rio Tularosa.

Geologic units and their water-bearing properties

In the following discussion of the geology of the Tularosa Basin rock types and thicknesses are taken from Pray (1961), Kottlowski and others (1956) and Kottlowski (1960), Otte (1959), and other authors, listed under Selected references. Classification and nomenclature conform to U.S. Geological Survey standards. Hydrologic and chemical data are taken from Weir (1965), Mourant (1963), Cooper (1965), Hood (1956) (1960) (1963), and observations by the author. Figure 2, adapted from Dane and Bachman (1965), is a geologic map showing surface geology, location of selected wells and springs in consolidated rock, and altitude of the top of Precambrian rocks. West to east and south to north sections (through the basin) are shown in figures 3 and 4.

Thick unconsolidated and semi-consolidated deposits of Cenozoic age form the most important aquifers in the Tularosa Basin. A detailed study of the origin, characteristics, and mode of deposition of these sediments would add much to a better understanding of the present hydrology of the basin--such a study, however, is beyond the scope of this report and the Cenozoic deposits are described only briefly.

Consolidated rocks

Precambrian rocks, the oldest in the area, are not important aquifers in the Tularosa Basin, although small quantities of water occur in the fractured and weathered outcrops. Runoff from the Precambrian rocks generally is of good chemical quality and normally carries relatively insoluble debris to alluvial fans.

The most extensive exposures of rocks of Precambrian age (fig. 2) are granitic and metamorphic rocks which occur along the east margin of the Organ and San Andres Mountains, in Mockingbird Gap, and in the Sierra Oscura. Two small outcrops of slightly metamorphosed shale, siltstone, and fine-grained quartz sandstone of Precambrian age occur south of Alamogordo (Pray, 1961, p. 22-27).

The Paleozoic rocks older than Early Permian in age consist of finely crystalline dolomite and limestone, with lesser amounts of sandstone, siltstone and shale. These rocks include the following:

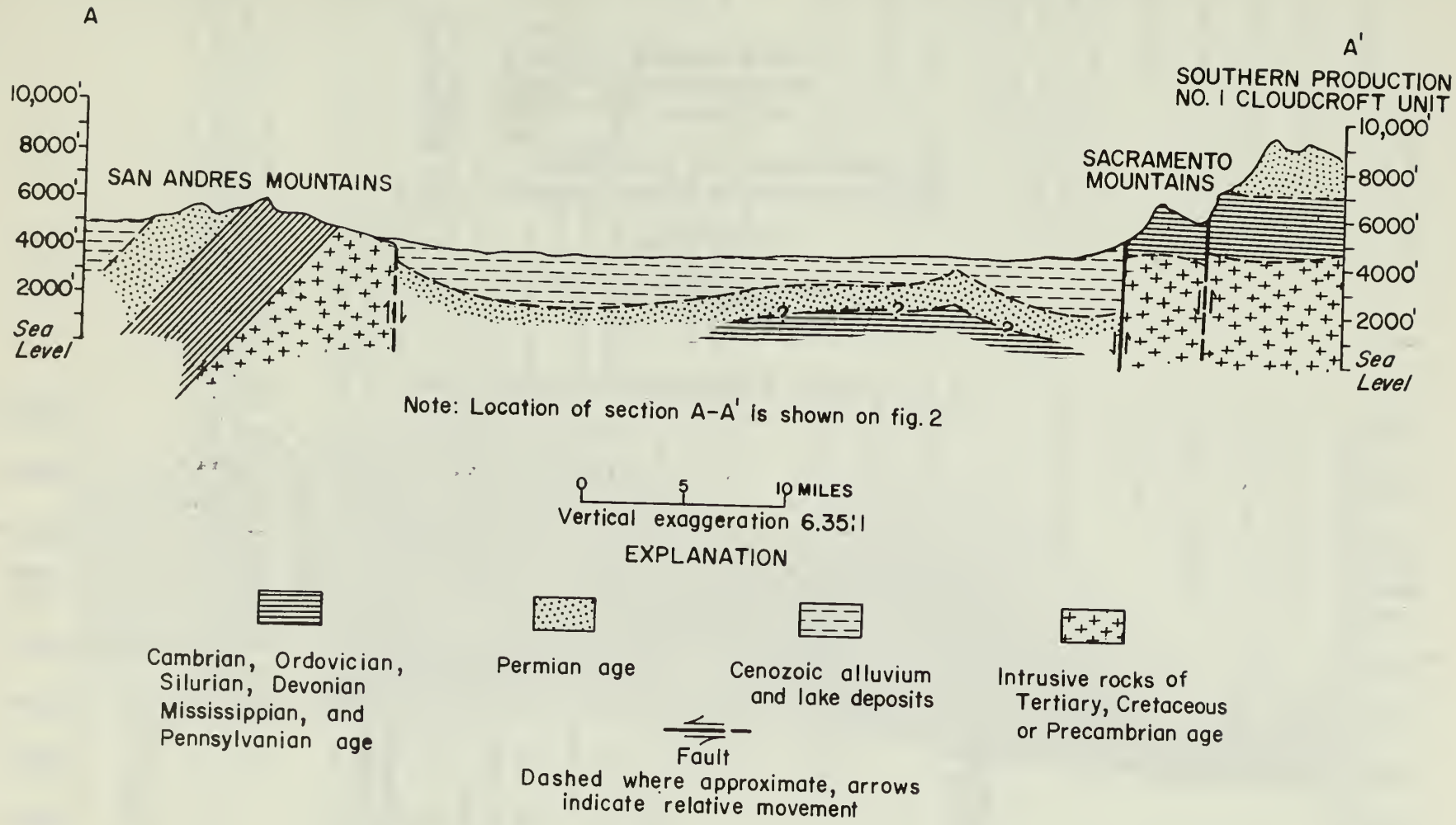


Figure 3.--Geologic divisions west to east through the Tularosa Basin.

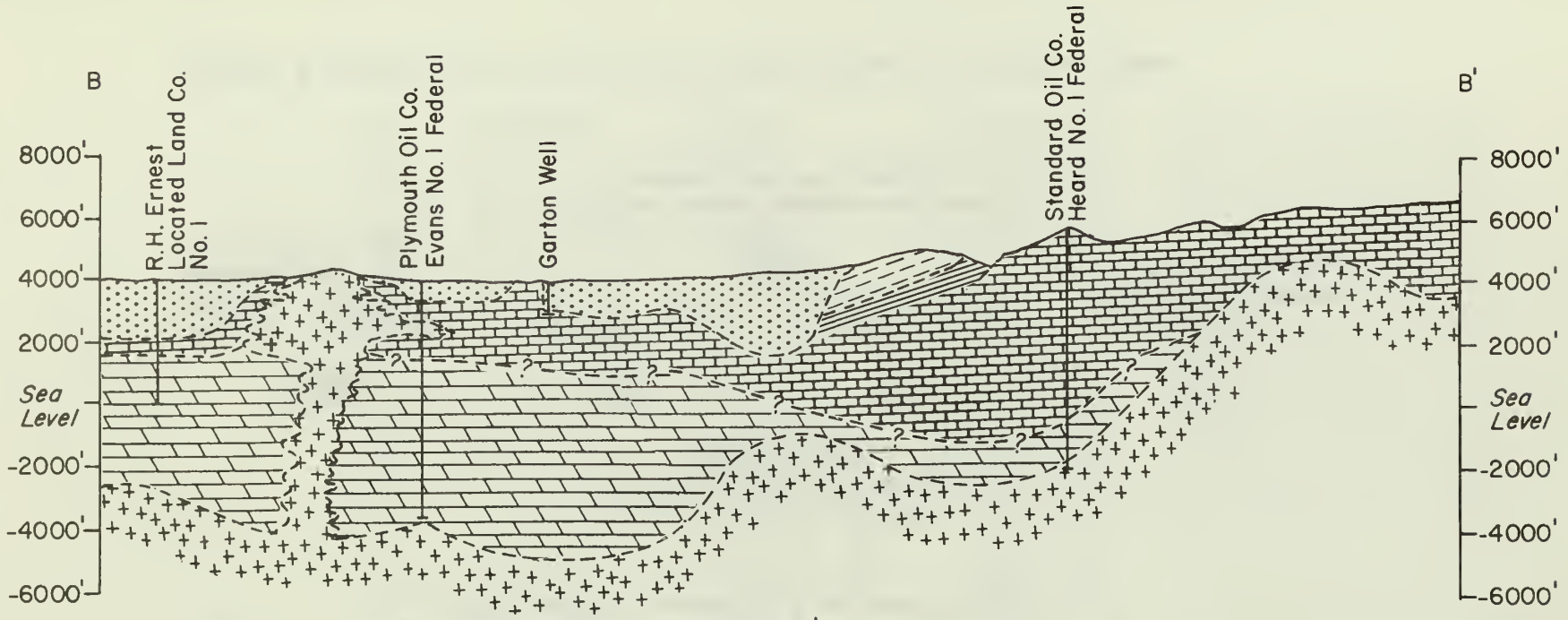


Figure 4.—Geologic divisions south to north through the Tularosa Basin.

Geologic unit	Age
Bliss Sandstone	Late Cambrian and Early Ordovician
El Paso Limestone	Early Ordovician
Montoya Dolomite	Middle and Late Ordovician
Fusselman Dolomite	Middle Silurian
Undivided	Devonian
Caballero of Laudon and Bowsher (1941), and Las Cruces, and Rancheria Formations of Laudon and Bowsher (1949)	Mississippian
Lake Valley Limestone	Mississippian
Helms Formation	Mississippian
Magdalena Group	Pennsylvanian and Early Permian

The total thickness of these Paleozoic rocks exceeds 3,300 feet locally in the Sacramento Mountains, although only about 2,000 feet were encountered in the Southern Production Co. No. 1 Cloudcroft Unit well (fig. 3). In the San Andres Mountains a thickness of 5,000 feet of Paleozoic rocks are exposed, and in the Franklin Mountains 3,400 feet are exposed. In the northern part of the basin, 1,740 feet of Paleozoic rocks were encountered in the Standard Oil Co. Heard No. 1 Federal well in sec. 33, T. 6 S., R. 9 E. Shallow ground-water in the outcrop area of the Paleozoic contains less than 1 g/l where the water has not migrated from Permian rocks. The water in the outcrop area is a calcium bicarbonate water. No water samples are available from the Paleozoic rocks at depth in the Tularosa Basin, but information from elsewhere in the Rio Grande Basin and from the electric log of one oil test well in the Tularosa Basin indicates the dissolved-solids content may range from 3 to 10 g/l. The salinity may, however, exceed 35 g/l where water enters the section from the Permian rocks.

Yields in the outcrop area are low, and based on published values of average permeability (Hogan and Sipes, 1966), a well penetrating the Paleozoic section would probably yield less than 100 gpm with a drawdown of 500 feet.

Runoff from the Paleozoic rocks of the Sacramento Mountains contains less than 1 g/l dissolved solids; part of this runoff infiltrates into the alluvial fans south of Alamogordo thus providing the fresh water in these deposits.

The rocks of Permian age in the Tularosa Basin include arkose, sandstone, siltstone, shale, limestone, dolomite, and evaporite deposits. The Permian rocks in the Tularosa Basin include, from oldest to youngest, the Bursum Formation, the Abo Formation, the Hueco Limestone, the Yeso Formation, the Glorieta Sandstone, and the San Andres Limestone.

The Bursum Formation consists of 300 to 400 feet of shale, arkose, and limestone in the San Andres and northern Sacramento Mountains. The formation is generally very low in permeability. A well in Mockingbird Gap (sec. 15, T. 9 S., R. 5 E.) in a fractured zone of the Bursum yields less than 20 gpm of fresh water. The water in the Bursum Formation is probably more saline at depth.

The Abo Formation consists of mudstone, arkose, and conglomerate with intertonguing shales, limestone, and dolomite to the south. The Abo Formation is 200 to 500 feet thick in the Sacramento Mountains near Alamogordo and a section 1,400 feet thick has been measured east of Tularosa (Otte, 1959, p. 59). An oil test in the northern part of the Tularosa Basin (sec. 33, T. 6 S., R. 9 E.) encountered 1,410 feet of the formation. Water in the outcrop area generally has a salinity of 1-3 g/l but the quality deteriorates with depth. The northern clastic facies of the Abo Formation has very low permeability, yielding only a few gallons per minute to wells in fractured zones. The Hueco Formation, apparently a southern marine facies of the Abo Formation, is about 1,500 feet thick in the Hueco Mountains. In the San Andres Mountains it ranges in thickness from 1,360 feet in Ash Canyon to 420 feet in Rhodes Canyon. East of the Hueco Mountains, wells yield a few gallons per minute for livestock but the water-bearing potential of the Hueco Formation is unknown.

The Yeso Formation consists of sandstone, gypsum, halite, calcareous siltstone, and silty limestones. In the San Andres Mountains the thickness varies from 320 feet at Ash Canyon to 1,580 feet at Rhodes Canyon. The Yeso is 1,200 to 1,800 feet thick in the southern Sacramento Mountains. An unusual thickness of 4,260 feet of Yeso Formation with more than 800 feet of halite occurs in the subsurface in the northern part of the basin.

The Yeso Formation supplies water for stock and domestic wells in the northern part of the basin. The upper few feet of the saturated zone yields 1-3 g/l calcium sulfate type water, but the salinity increases

with depth in a well in sec. 2, T. 8 S., R. 8 E. The reported chloride content at 1,260 feet below land surface was 1,700 mg/l; at 1,460 feet 2,000 mg/l; and at 2,680 feet 96,000 mg/l.

Well yields in the Yeso are generally low, less than 5 gpm. In areas where fractures or solution channels occur, however, well yields can be very large. In sec. 8, T. 7 S., R. 8 E. a well yielded more than 200 gpm of 2,920 mg/l saline water. The Garton well, an old oil-test well that presently supports a saline lake southeast (sec. 5, T. 18 S., R. 8 E.) of White Sands National Monument by artesian flow, reportedly yielded 1,100 gpm by artesian flow when it was drilled. The water has a salinity of about 10 g/l and comes from a solution channel at 892 feet that is assumed to be in the Yeso Formation.

The Glorieta Sandstone, which is thin and discontinuous throughout the area, generally consists of 10 to 30 feet of silty sandstone. The Glorieta is not an important aquifer in most of the area, but yields about 100 gpm of fresh water from a well in sec. 32, T. 8 S., R. 5 E. The Hondo Sandstone Member of the San Andres Limestone, which may correlate with part of the type Glorieta (Pray, 1961, p. 115), is less than 10 feet thick in the Sacramento Mountains.

The San Andres Limestone, composed of limestone and dolomitic limestone, is about 300 to 600 feet thick in the Sacramento Mountains. The formation is highly permeable east of the report area in the Roswell artesian basin where transmissivities (cubic feet per day flow through a section one-foot wide extending the full thickness of the aquifer under a hydraulic gradient of 100 percent) as high as 187,000 ft^2/day have been measured by Hantush (1955). A well west of the Tularosa Basin reportedly flowed about 900 gpm from the San Andres. In the Tularosa Basin the San Andres is tapped only in the outcrop area, and well yields are low.

The Dockum Group of Late Triassic age is exposed northwest and southwest of Carrizozo, where locally it may be as much as 500 feet thick. The Dockum Group consists of sandstone, siltstone, shale, and limestone, which yield small amounts of 1 to 3 g/l saline water to wells and springs in the outcrop area. In sec. 6, T. 6 S., R. 10 E. and sec. 1, T. 6 S., R. 9 E. irrigation wells reportedly yield 150 gpm from fractured rocks of the Dockum Group.

Rocks of Cretaceous age include the Mesaverde Group, the Mancos Shale, and the Dakota Sandstone. The Mesaverde Group is composed of sandstone and shale and local coal beds. The thickness is as much as 1,000 feet in the basin. The formation is about 500 feet thick in

Carrizozo area, where it is an important aquifer. Well yields of 850 gpm have been reported, although yields of 150 gpm or less are typical. Most of the water derived from the Mesaverde has a salinity of 1 to 3 g/l. Underlying the Mesaverde Group is the Mancos Shale, which is about 1,200 feet thick. The Mancos Shale has a very low permeability and yields small amounts of water to wells and springs in fractured zones. The Dakota Sandstone is about 100 feet thick and yields small quantities of 1 to 3 g/l saline water to wells in the outcrop area. East of the area Mourant (1963, p. 26) reports well yields of 5 to 125 gpm from the Dakota and west of the area, in sec. 25, T. 10 S., R. 1 W., Weir (1965, p. 48) reports a flow of 200 gpm from an oil-test well.

Deposits of Cenozoic age

The mountains bordering the Tularosa Basin started to form during middle Tertiary (Miocene) time. Strain (1969) indicates that basin filling had begun by early Miocene time; thus, some deposits in the Tularosa Basin may be the time equivalents of the Ogallala Formation. Streams flowing into the center of the basin deposited coarse fans near the mountain front and fine-grained alluvium in the center of the basin, possibly in response to repeated uplift, throughout the Pleistocene Epoch. Lacustrine deposits are dominant in the center of the basin. Strain (1966) states that the formation of Lake Cabeza de Vaca resulted in deposition of a continuous sheet of lacustrine deposits that merged the floors of the Hueco and Mesilla bolsons by early Pleistocene time. The lake persisted until middle Kansan (Pleistocene glacial) time. During the Wisconsin glaciation, Lake Otero, the predecessor of Lake Lucero, covered 700 square miles in the Tularosa Basin (herrick, 1904). These lacustrine deposits may correlate with the Fort Hancock Formation of Strain (1965) in the southern Hueco Bolson; the formation is described by Strain (1969) as a Pleistocene lacustrine deposit composed of bentonitic claystone, siltstone, and silt with layers and veins of gypsum. Strain indicates this formation may be 5,000 feet thick in the southern Hueco Bolson. The ancestral Rio Grande apparently entered the study area through the gap between the Franklin and Organ Mountains (Hawley and Kottlowski, 1969, p. 91); thus, fluvial deposits of the Rio Grande may be expected only in the extreme southwest corner of the Tularosa Basin. These deposits may extend southward to the Hueco Bolson where the Camp Rice Formation of Strain (1965) is a fluvial deposit of the Rio Grande about 90 feet thick and composed of gravel, sand, silt, volcanic ash, and caliche.

The thickness of the Cenozoic deposits in the Tularosa Basin has been determined by gravimetric and seismic techniques, and by

a few widely-spaced test holes. Unconsolidated alluvium was encountered to a depth of 1,960 feet in the R. H. Earnest Located Land Co. No. 1 well (sec. 20, T. 25 S., R. 7 E.) and to a total depth of 6,015 feet in a test hole drilled east of White Sands Missile Range Headquarters. The alluvium may be as much as 8,000 feet thick at the south end of the basin and 5,000 feet thick southeast of Rhodes Canyon. Seismic and gravimetric data indicate more than 3,000 feet of unconsolidated material under lie the area near Valmont siding, south of Alamogordo. The thickness of the saturated deposits in the Tularosa Basin can be computed using the water-table data and altitude of the top of the consolidated bedrock portrayed by contours shown in figure 5.

Well yields in the Cenozoic deposits of the Tularosa Basin are highly variable, reflecting the nonhomogeneity of the sediments. It is impossible to predict the yield of any individual well, and all the estimates of potential yield are broad generalizations (fig. 6).

The maximum yields are obtained from wells drilled in coarse deposits high on the alluvial fans where yields of more than 1,400 gpm have been measured. Aquifer transmissivities as high as 47,000 ft^2/day have been determined. Wells lower on the alluvial fans yield 300 to 700 gpm in aquifers with transmissivities of 1,000 to 2,000 ft^2 /day.

Little information is available on the yield of wells in the central part of the basin. Wells in the basin east of Rhodes Canyon have very low yields (15 gpm in a well 600 feet deep). A well drilled 8 miles east of White Sands Missile Range Headquarters produced 740 gpm, and a transmissivity of 2,640 ft^2/day was determined during a pump test. Although the well was developed in a fine sand, most of the alluvial material penetrated was clay and silt.

The specific yield (the percent volume of water that can be drained from a volume of rock by gravity) of the upper part of the alluvial fans is 12 to 15 percent. The specific yield of the lower part of the alluvial fans has been determined at 8 to 9 percent, and that of the deposits in the central part of the basin is estimated to be 6 percent or less.

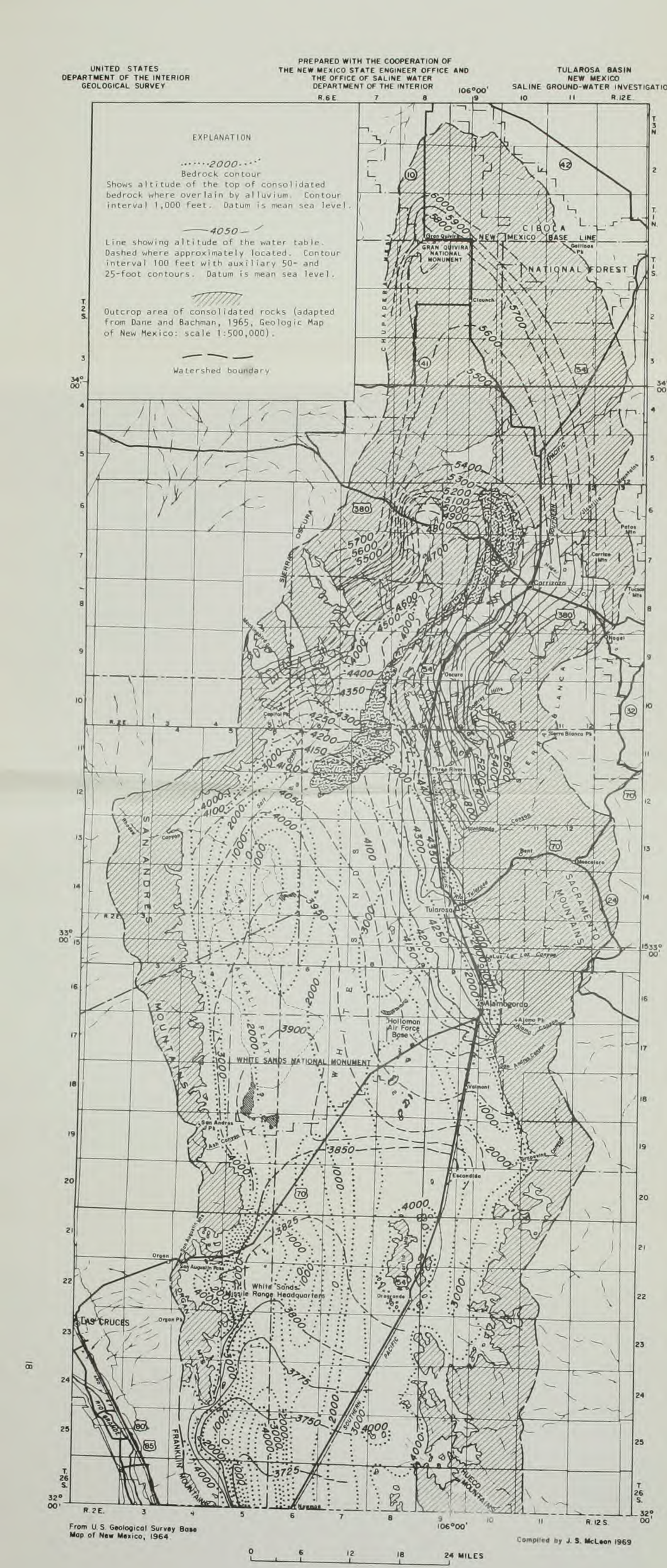


Figure 5.--Altitude of the water table and altitude of the top of consolidated bedrock.

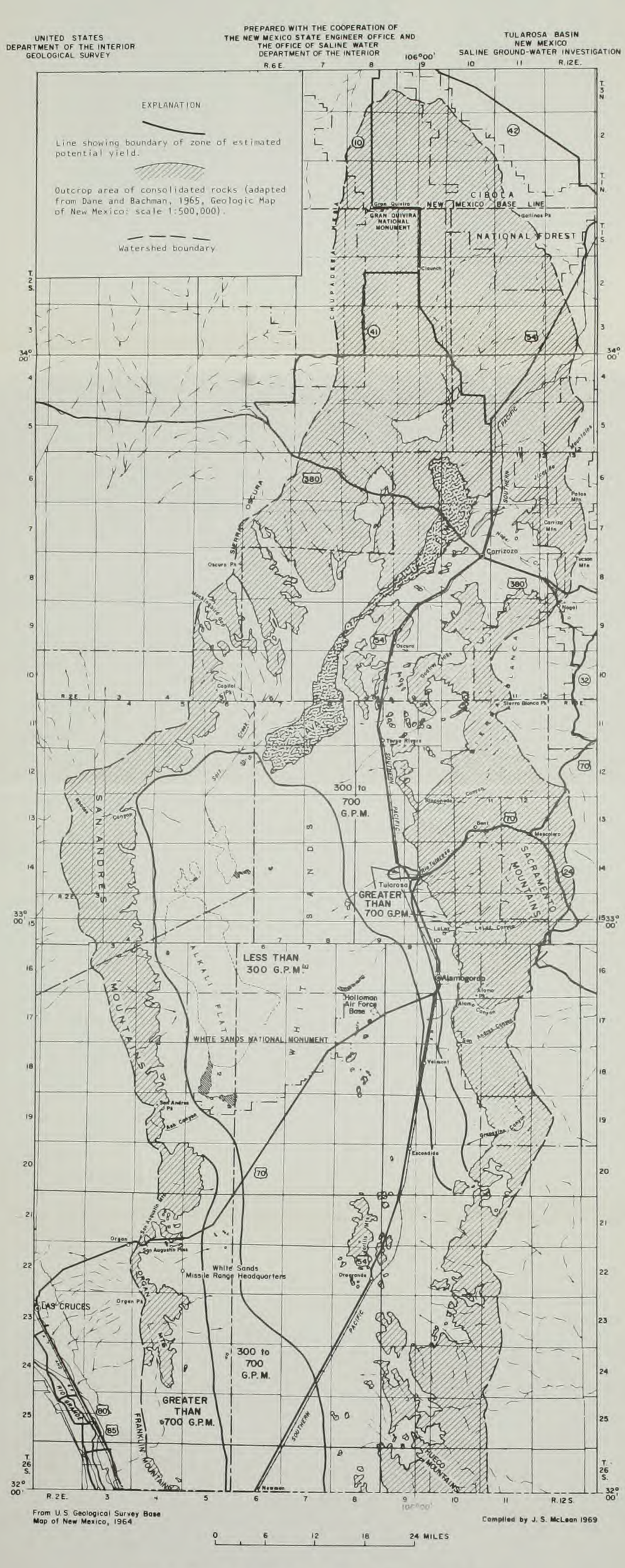


Figure 6.--Estimated potential yield of wells developed in the upper 500 feet of the saturated zone in alluvium.

Water-quality units and their water-supply potential

Water in the alluvial deposits of the Tularosa Basin is freshest near the mountain front and generally increases in salinity with distance from the mountain front and with depth.

Water entering the alluvial fans has acquired dissolved solids from the runoff area. Additional minerals are dissolved as the water moves through the fans. Fresh water of calcium magnesium bicarbonate type occurs where bedrock is igneous and the alluvial fans are composed of detritus from igneous rocks. In areas where the bedrock and alluvial deposits are moderately soluble limestones and dolomites, the water in the alluvial fans is a relatively fresh calcium bicarbonate type. Alluvial fans which receive runoff from areas underlain by soluble evaporite deposits contain water high in calcium sulfate and sodium chloride.

Fresh-water unit

Fresh water, defined as containing less than 1,000 mg/l dissolved solids (Krieger and others, 1957, p. 4), occurs at several locations in the Tularosa Basin (fig. 7). Two large areas of considerable importance occur in the alluvial fans south of Alamogordo and adjacent to the southern San Andres Mountains extending southward beyond the New Mexico-Texas State line.

The fresh water south of Alamogordo extends a maximum distance of 8 miles west of the mountain front and south of the Alamo Canyon alluvial fan to about 10 miles south of Grapevine Canyon (fig. 7). The fresh water zone has a thickness of at least 1,200 feet adjacent to the mountain front about 8 miles south of Alamogordo and thins to an irregular edge westward.

Holloman Air Force Base withdrew about 986 million gallons (about 3,020 acre-feet) from this fresh ground-water body during 1968. Scattered stock, domestic, and irrigation wells withdraw less than 200 acre-feet per year. An estimated 37 million acre-feet of fresh-water-bearing alluvium lies in the region between Alamogordo and a locality about 10 miles south of Grapevine Canyon. The specific yield of the deposits has been determined at 8 to 9 percent in the Boles well field, 6 miles south of Alamogordo, and estimated at 12 percent in the San Andres well field, 8 miles south of Alamogordo. Thus about 3 to 4 million acre-feet of water may be present in this zone. The water requirements of the city of Alamogordo may reach 13,300 acre-feet per year by 1990 (McMorries, 1967, p. 24) of which only about 2,930 acre-feet will be supplied by the Bonito Lake pipeline and the springs. The remainder probably would be supplied

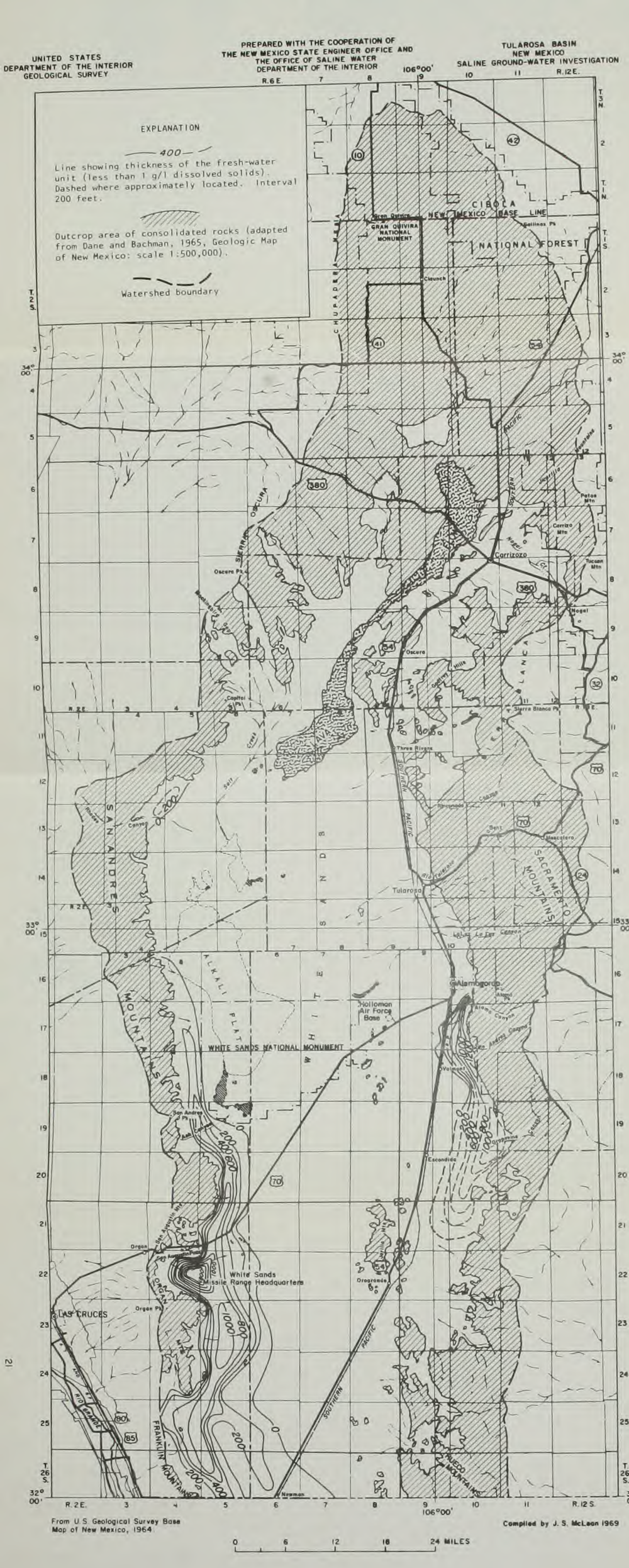


Figure 7.--Thickness of the fresh-water unit.

by pumping from the fresh-water zone. Much of this fresh water has a salinity less than 500 mg/l and could be blended with saline water to minimize the overdraft of the fresh-water zone.

Additional test wells are needed to define adequately the extent and thickness of the fresh-water zone, particularly in the Grapevine Canyon area.

The other and larger fresh-water body in the Tularosa Basin which lies adjacent to the San Andres, Organ, and Franklin mountains from near Ash Canyon on the north to the Texas border on the south is continuous with the fresh-water body in the Hueco Bolson in Texas. Water from the fresh-water zone in New Mexico is used by White Sands Missile Range. This zone has a maximum thickness of about 1,800 feet in the White Sands Missile Range Headquarters area. An area of over 400 square miles east of the San Andres, Organ, and Franklin mountains in New Mexico is underlain by fresh-water-bearing alluvium containing an estimated 7 million acre-feet of fresh water. Knowles and Kennedy (1958) estimated that 6.2 million acre-feet of fresh water is theoretically recoverable in the part of the Hueco Bolson in New Mexico[1/].

Sayre and Livingston (1945, p. 29) measured specific yields of 35 percent (in the laboratory) for sand samples from basin deposits. They estimated that the specific yield of basin deposits in the El Paso well field (in the Hueco Bolson south of the New Mexico-Texas border) was 17 percent. A specific yield of 15 percent has been measured for the deposits in the reentrant between the Organ and San Andres mountains (Herrick, 1960a, p. 98) where the White Sands Missile Range Headquarters is withdrawing water at the rate of about 2,800 acre-feet per year from the fresh-water zone.

Saline-water

1-3 g/l unit

Water in the 1 to 3 g/l salinity range occurs throughout much of the basin as a transitional unit between the fresh water adjacent to mountain fronts and the more saline water lying in the central part of the basin and beneath the fresh water.

1/ Knowles and Kennedy defined fresh water as water containing less than 250 parts per million chloride, and estimated that the volume of water present west of the 100-foot contour line on their plate 11 was theoretically recoverable.

This zone varies greatly in thickness, but appears to be at least 250 feet thick northeast of White Sands Missile Range Headquarters and in the central part of Tularosa Basin near the Texas border. Near Newman the zone may be 500 feet thick, but the data are sparse (fig. 8).

The largest volume of 1-3 g/l saline water occurs in the alluvial deposits adjacent to the mountain front near Tularosa. About 16,000 acre-feet of this water was used in 1968 for irrigation of about 4,500 acres near the community of Tularosa. The water is predominantly a calcium sulfate type.

Approximately 360 million acre-feet of basin deposits are saturated with 1-3 g/l saline water.

3-10 g/l unit

Information on the thickness of the 3 to 10 g/l saline-water unit is sparse. In the southwestern part of the basin this unit is generally less than 250 feet thick, although it may be thicker along the eastern side of the basin (fig. 9). Shallow stock wells in the northern part of the basin indicate that 1 to 3 g/l water is present, at least to a shallow depth, throughout much of the north-central part of the basin. The unusual thickness in the Alamogordo area is part of the transitional zone between the fresher water adjacent to the mountain front and the more saline water in the central basin.

Malpais Spring (sec. 8. T. 12 S., R. 7 E.), which emerges from basalt at the southwestern edge of the lava flow, discharged 565 gpm in June 1969. In August 1969 the spring flow was 220 gpm, indicating a high seasonal variation. Herrick and others (1960) reported a flow of more than 1,000 gpm; and Weir (1965, p. 61) reported an estimated flow of 1,500 gpm of 3 to 10 g/l saline water in June 1955.

Flow in Salt Creek (fig. 9) in June of 1969 was less than 250 gpm of 3 to 10 g/l saline water. Herrick and others (1960) report a flow of about 450 gpm.

The volume of water in the 3 to 10 g/l unit is probably of the same order of magnitude as that in the 1 to 3 g/l unit, but a better definition of the volume of saline water in this range must await additional test drilling.

The predominant ions in the 3 to 10 unit vary widely, so that the water in different areas may be any of the following types: sodium chloride, calcium chloride, sodium sulfate, calcium sulfate, and calcium magnesium sulfate.

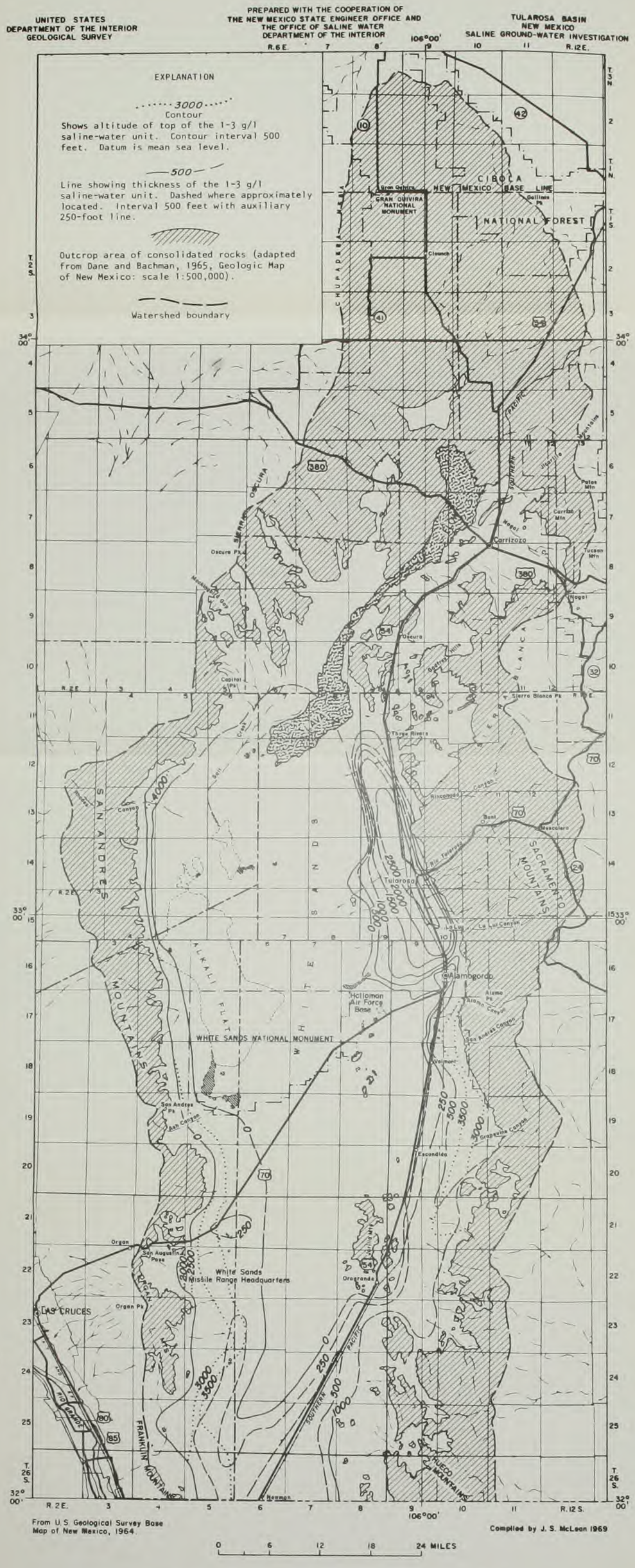


Figure 8.--Altitude and thickness of the 1-3 g/l saline-water unit.

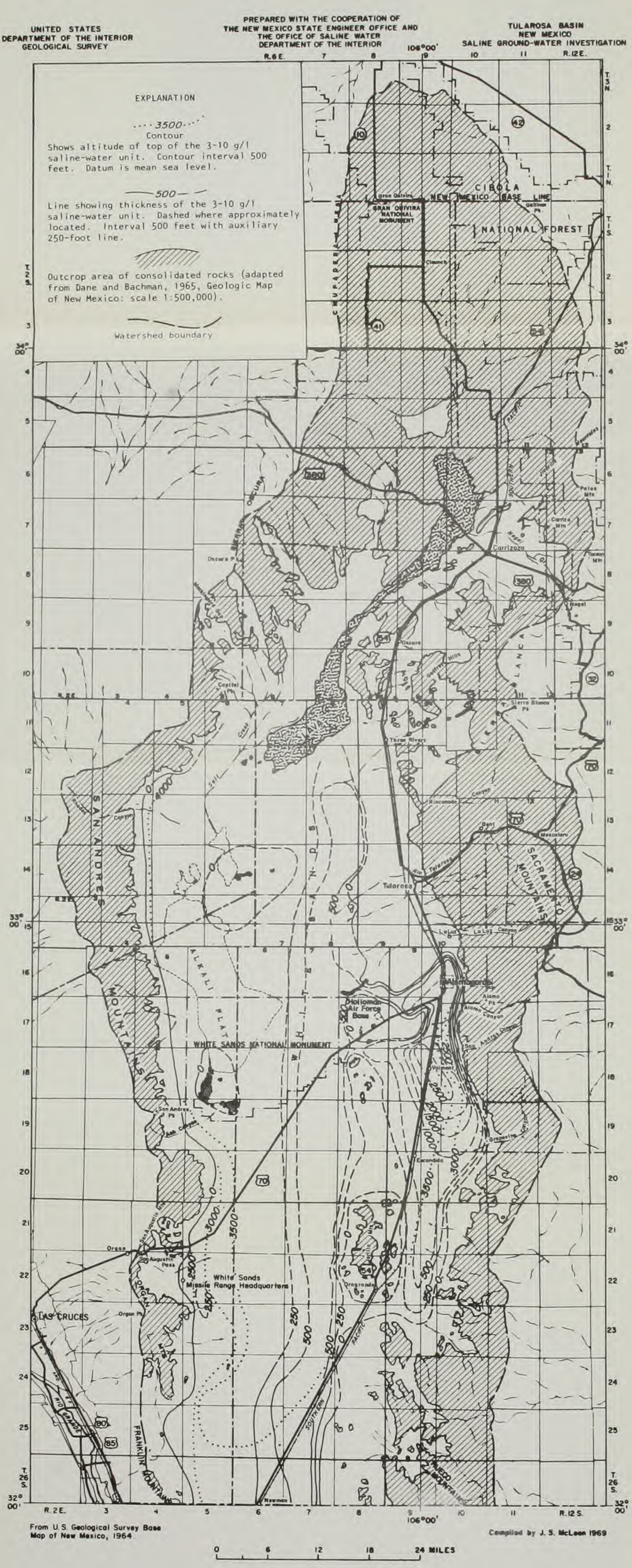


Figure 9.--Altitude and thickness of the 3-10 g/l saline-water unit.

10-35 g/l unit

The 10 to 35 g/l saline-water unit extends throughout the central part of the basin (fig. 10). This zone has been encountered beneath less saline water at depths of 500 to 1,000 feet in the southern part of the basin and a few wells in the northern part of the basin yield 10-35 g/l water at shallow depths.

The water in this quality range is a sodium chloride type, with secondary amounts of calcium sulfate.

The quantity of water in this zone is unknown, but may be of the same order of magnitude as that in the 1 to 3 g/l or 3 to 10 g/l saline-water zones.

Brine unit

An estimated 98 percent of the alluvial deposits in the Tularosa Basin contains sodium chloride brines with dissolved-solids content greater than 35 g/l. In a test hole drilled 4 miles east of White Sands Missile Range Headquarters (sec. 15, T. 22 S., R. 5 E.) over 4,000 feet of the 6,015 feet of deposits penetrated by the well contained brine. The brine reached a maximum concentration of 112,000 mg/l from 2,590 to 3,700 feet below the surface. The salinity of the deeper samples ranged from 44,300 to 52,800 mg/l.

Brine also occurs at shallow depths beneath the dry lakes in the central part of the basin.

No information is available on the yield of wells developed in the brine zone. Playa deposits are virtually impermeable; however, unconsolidated deposits near the playas may yield water to wells. In the test hole drilled to 6,015 feet, only 25 percent of the section to a depth of 5,200 feet contained a predominance of sand-sized grains. The section below 5,200 feet contained mostly sand, and might produce large quantities of water. Kunkler (written communication, 1969) believes, on the basis of geophysical logs and water samples, that playa deposits containing halite beds were encountered from 2,790 to 3,015 feet in the test hole.

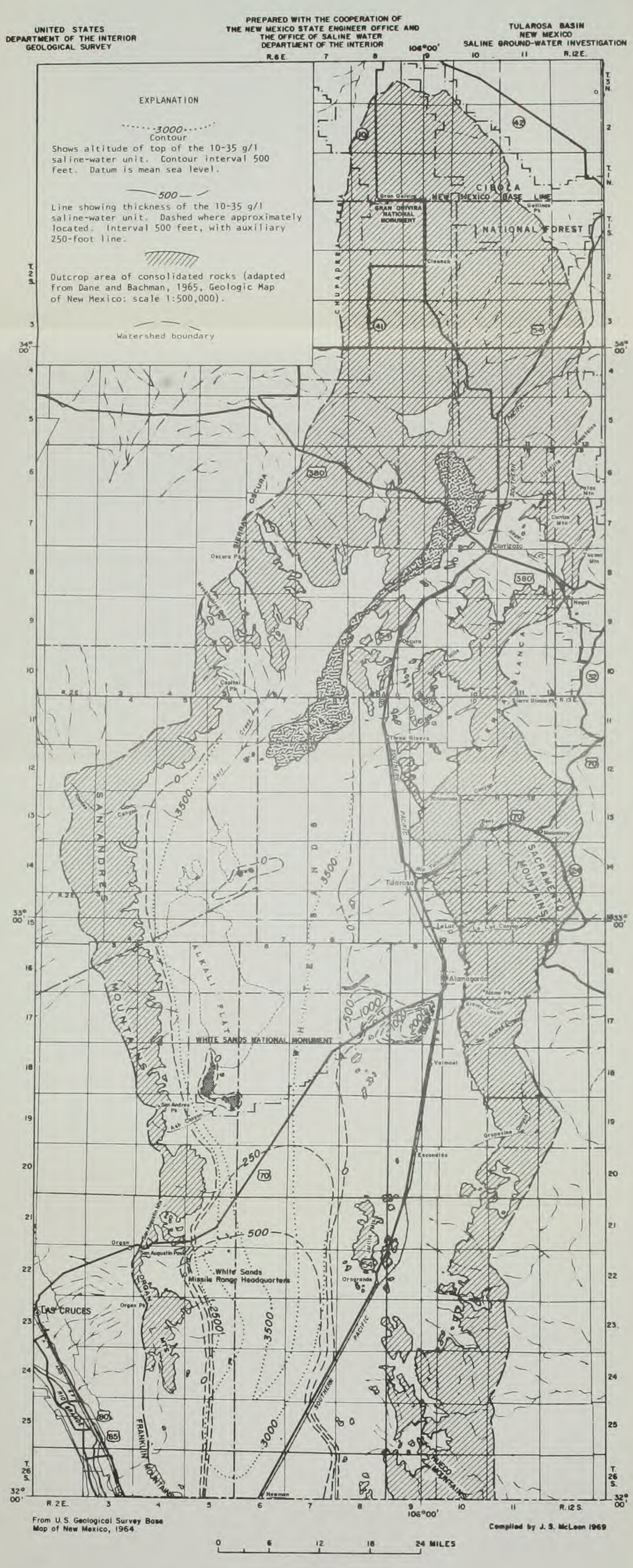


Figure 10.--Altitude and thickness of the 10-35 g/l saline-water unit.

Water-supply potential of selected areas

Four areas in the Tularosa Basin were studied in more detail to provide the information on saline-water resources used in a companion report (Stucky and others, in preparation). These are areas in which a demand for desalted water may develop or areas where large quantities of saline water may exist.

Alamogordo

The Alamogordo area, as defined in this report, consists of parts of the Escondido Canyon, Tres Hermanos, Holloman and Alamogordo topographic map quadrangles, and contains Holloman Air Force Base Headquarters and the communities of Alamogordo and La Luz (fig. 11).

The only information available on the consolidated rocks underlying alluvial deposits in the area has been obtained from scattered oil test wells in the western part of and south of the area.

Plymouth Oil Company, Evans No. 1 Federal (sec. 15, T. 20 S., R. 9 E.)

This well penetrated 690 feet of unconsolidated alluvial fill and bottomed at a depth of 7,585 feet in the lower third of the El Paso Limestone (Kottlowski and others, 1956, p. 81-82). Assuming a thickness of 420 feet for the El Paso Formation, and 110 feet for the underlying Bliss Sandstone, about 7,100 feet of consolidated rocks underlie the unconsolidated alluvial deposits. An analysis of the spontaneous potential curve on the electric log of the well indicates most of the water in this well has a salinity of 3 to 10 g/l.

Phillips Petroleum Company, Turquoise No. 1 (sec. 18, T. 20 S., R. 9 E.)

This well reportedly penetrated many igneous sills. A slight show of water was reported from limestone at a depth of 260 feet, and 25 barrels of water per hour (13 gpm) was reported from an igneous sill at a depth of 1,066 feet. Igneous rocks were penetrated from a depth of 1,066 feet to a total depth of 5,436 feet.

Sun Oil Company, T. J. Pearson No. 1, (sec. 35, T. 20 S., R. 10 E.)

The total depth of this well was 4,468 feet. The Montoya Dolomite was penetrated at 4,390 feet (Kottlowski and others, 1956, p. 82). Assuming a thickness of 225 feet for the Montoya Dolomite, 420 feet for the El Paso Limestone, and 110 feet for the Bliss Sandstone, approximately 5,140 feet of consolidated rock overlies the Precambrian in this area. No data are available on the quality of water in this well.

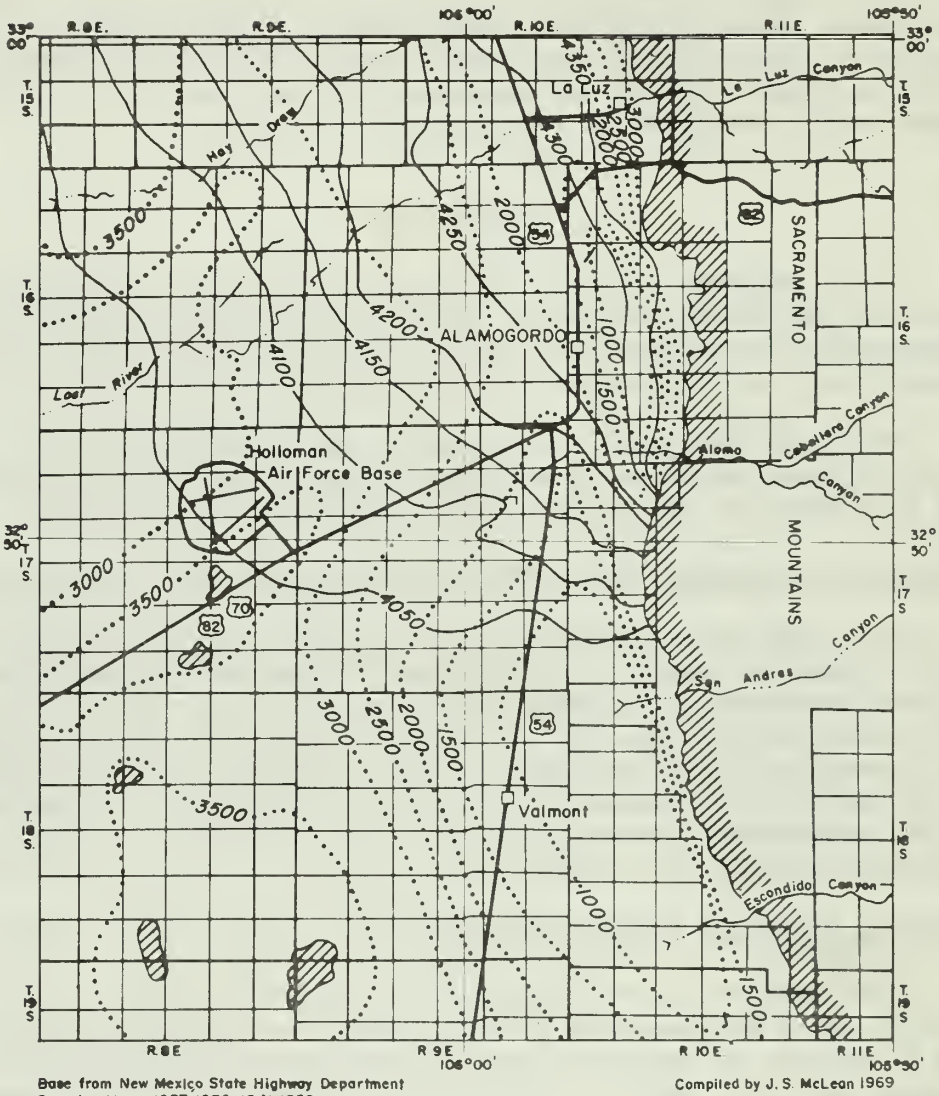


Figure 11.--Map of the Alamogordo area showing altitude of the water table and altitude of the top of consolidated bedrock.

Garton well (sec. 5, T. 18 S., R. 8 E.)

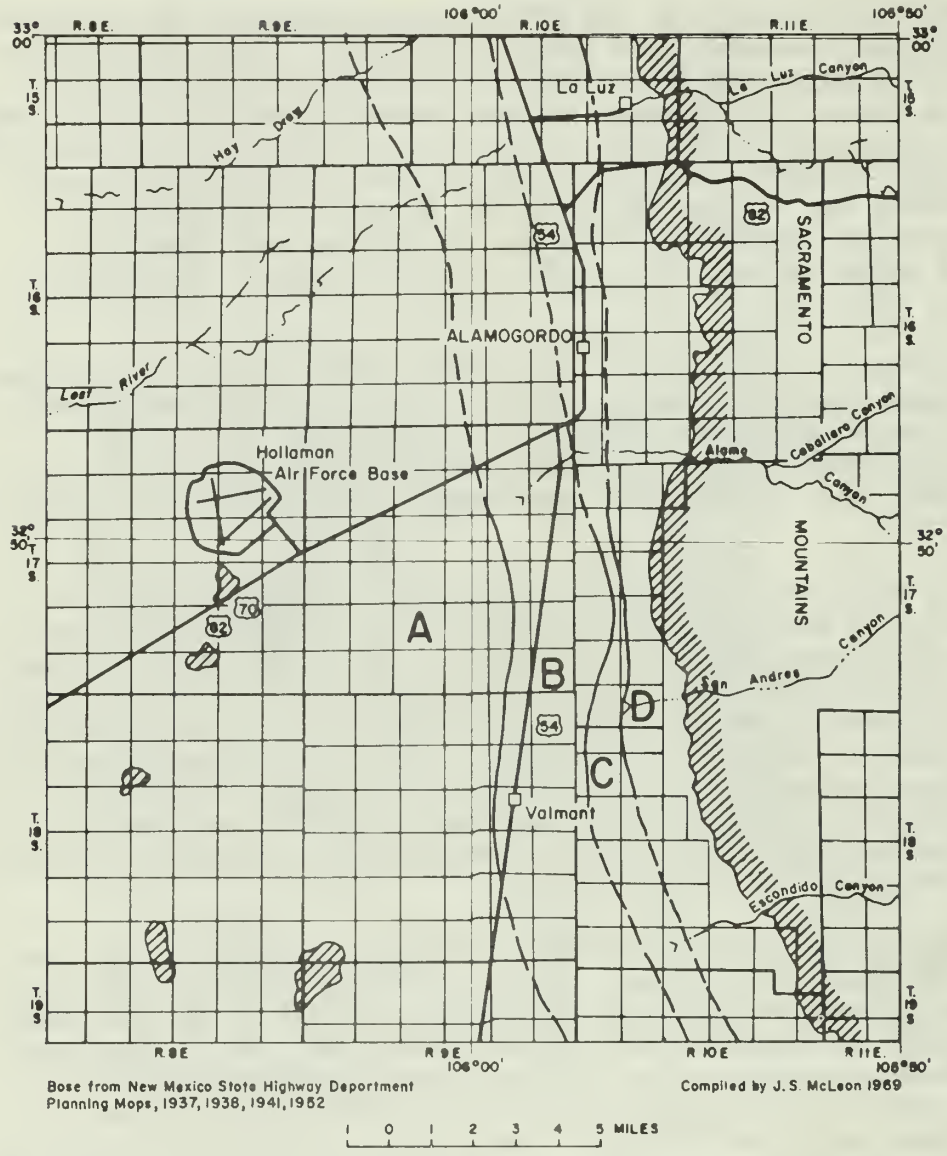
This well penetrated 783 feet of basin deposits and a sequence of shale and limestone to a depth of 989 feet. Artesian flow from a cavity at depths of 889 to 892 feet currently (1969) supports a two-acre lake. The dissolved-solids content of water from the Garton well is reported to have been 8,406 mg/l in 1926; 7,580 mg/l in 1929; 9,111 mg/l in 1934; and 10,240 mg/l in 1964. The reported water temperature was 36°C in 1937 and 33°C in 1965. The flow rate reportedly decreased from 1,100 gpm in 1926 to less than 10 gpm in 1968 after the casing was pulled, and an attempt was made to plug the hole.

Although the data above are rather sparse, they indicate that large quantities of water in the 3-10 g/l range might be otained from the carbonate rocks underlying the alluvial fill in the Alamogordo area; however, too few wells have been drilled to adequately test the yield of these rocks or the quantity of water available.

All of the ground-water pumpage in the Alamogordo area is obtained from unconsolidated alluvial deposits immediately west of the Sacramento Mountains escarpment. The altitude of the base of the unconsolidated alluvium (fig. 11) has been determined from gravity, seismic, and test-well data. Gravity data, supplied by Robert Mattick (written communication, 1967), has been adjusted for assumed variation in density of the alluvial fans. Seismic profiles, also supplied by Mattick, were used with a preliminary plot of recent seismic profiles (written communication, William L. Shaffer) made on Holloman Air Force Base.

Well yields in the Alamogordo area are as high as 1,400 gpm (produced from a well in sec. 32, T. 17 S., R. 10 E., during test pumping). Measured specific capacities of wells in the area range from 0.8 to 16.8 gpm/ft (gallons per minute per foot of drawdown). Transmissivities determined from pump tests in the Boles and San Andres well fields (8 miles south of Alamogordo) ranged from 177 ft^2/day to 21,800 ft^2/day. The yields of wells in the alluvial deposits are highly variable, but in general the highest yields are obtained from fan deposits near the Sacramento Mountains escarpment (fig. 12). The lowest yields are obtained from the fine-grained deposits in the basin west of the alluvial fans.

Water containing less than 1 g/l occurs in a wedge along the mountain front south of Alamogordo. Over 1,200 feet of deposits saturated with fresh water were encountered in a test well drilled near the mouth of San Andres Canyon (sec. 32, T. 17 S., R. 10 E.). Fresh water is also found in stock wells between San Andres Canyon



Line showing boundary of zone of potential yield, dashed where approximately located.

Zone	A	B	C	D
Average potential well yield	150 gpm	300 gpm	500 gpm	1000 gpm
Average transmissivity	est. 900	1,500	2,500	20,000
Storage Coefficient	est. 6	8	9	est. 12

Boundary of alluvial deposits (adapted from Dane and Bachman, 1965, Geologic Map of New Mexico, scale: 1:500,000)

Figure 12.--Map of the Alamogordo area showing estimated potential yield of water wells.

and Grapevine Canyon (south of the Alamogordo area). The city of Alamogordo reportedly has found fresh water in test wells drilled near the mouth of Grapevine Canyon. The fresh-water wedge thins westward to about 200 feet near Highway 54. Samples obtained from the fresh-water zone are of the calcium magnesium sulfate type. The reported temperatures of water samples range from 20°C to 24°C.

Ground water of 1-3 g/l salinity occurs in unconsolidated deposits south of Alamogordo as a transitional zone underlying and west of the fresh-water zone (fig. 13). Near the mouth of San Andres Canyon (fig. 14), 1-3 g/l water is encountered at a depth of about 1,500 feet and extends to about 2,000 feet below the land surface. One-half mile west of Highway 54, the 1-3 g/l unit occurs at a depth of about 150 feet and 3-10 g/l water is encountered in a 300-foot test well 2 miles west of Highway 54.

South of Alamogordo a shallow zone of 1-3 g/l saline water locally overlies the fresh-water zone. Infiltration of water from this shallow zone may have caused the city of Alamogordo to abandon two public-supply wells.

North of Alamogordo, from the Sacramento Mountains west to about 106°07' longitude, all wells in the area from which water samples have been collected yield 1-3 g/l saline water.

The water in the 1-3 g/l zone in the Alamogordo area is predominantly a calcium sulfate type, with the exception of a sodium sulfate type water obtained from a depth of between 1,624 and 1,842 feet near the mouth of San Andres Canyon. Reported temperatures of water samples range from 19°C to 24°C.

Ground water of 3-10 g/l salinity is produced from scattered stock wells south and west of Alamogordo and in some wells in and near Alamogordo. An old test well, about a mile west of Alamogordo (sec. 26, T. 16 S., R. 9 E.), was drilled to 1,004 feet and produced water containing 3,049 mg/l (Meinzer and Hare, 1915, p. 289). Figure 15 shows the presumed thickness of deposits saturated with 3-10 g/l saline water. The predominant anion is sulfate, but the predominant cation varies from sample to sample. The reported temperatures of samples range from 18°C to 19°C.

Ground water of 10-35 g/l salinity (fig. 16) was collected from two wells on Holloman Air Force Base. A sample from a shallow well in sec. 23, T. 17 S., R. 9 E., contained about 11,000 mg/l and a sample from a depth of 160 feet in a well in sec. 13, T. 17 S., R. 8 E. contained 32,000 mg/l. The samples were a calcium magnesium sulfate and a sodium chloride type. Meinzer and Hare (1915, p. 293) obtained a water sample with a salinity of 11,640 mg/l from a well 62 feet deep in sec. 13, T. 17 S., R. 9 E.

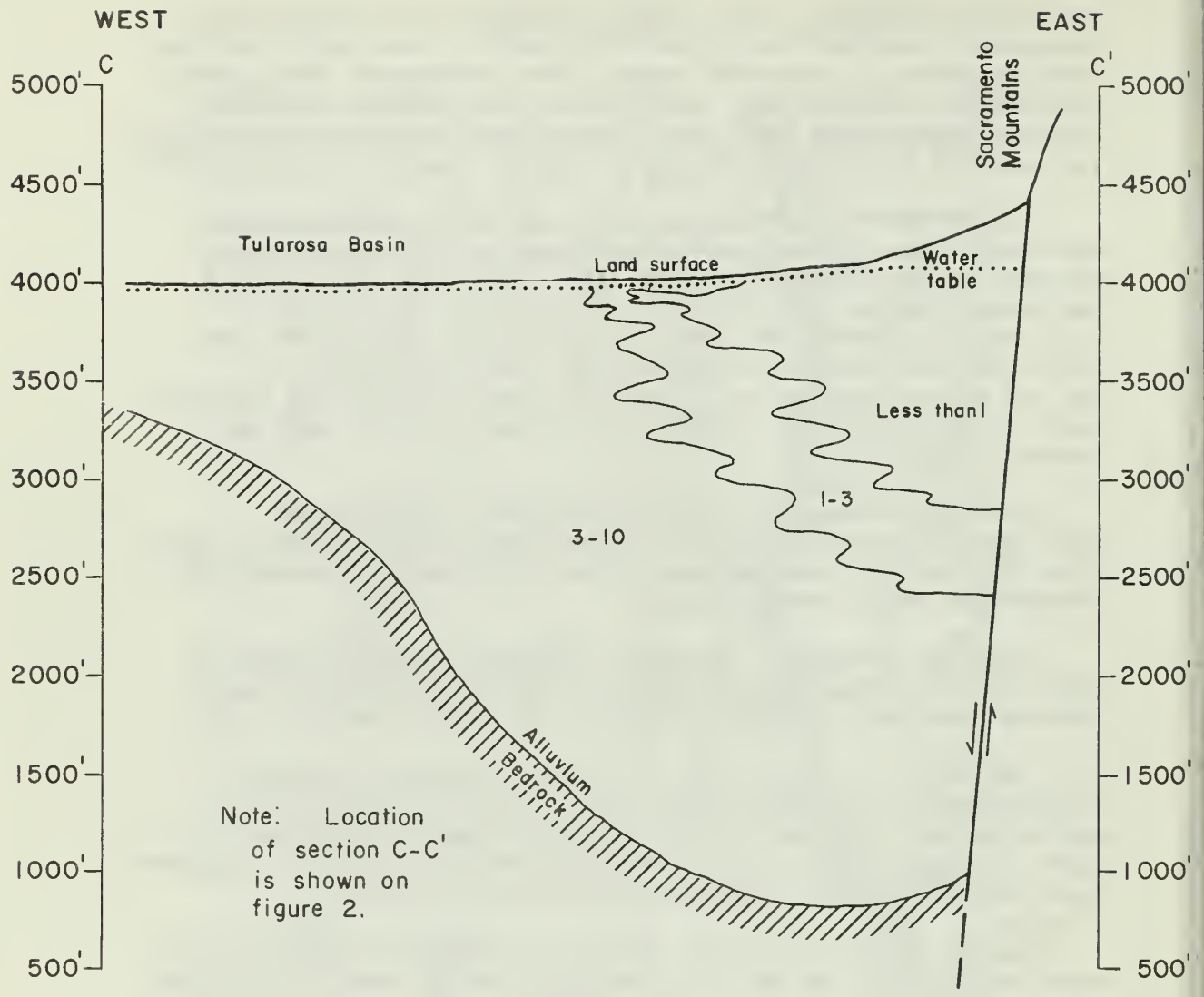
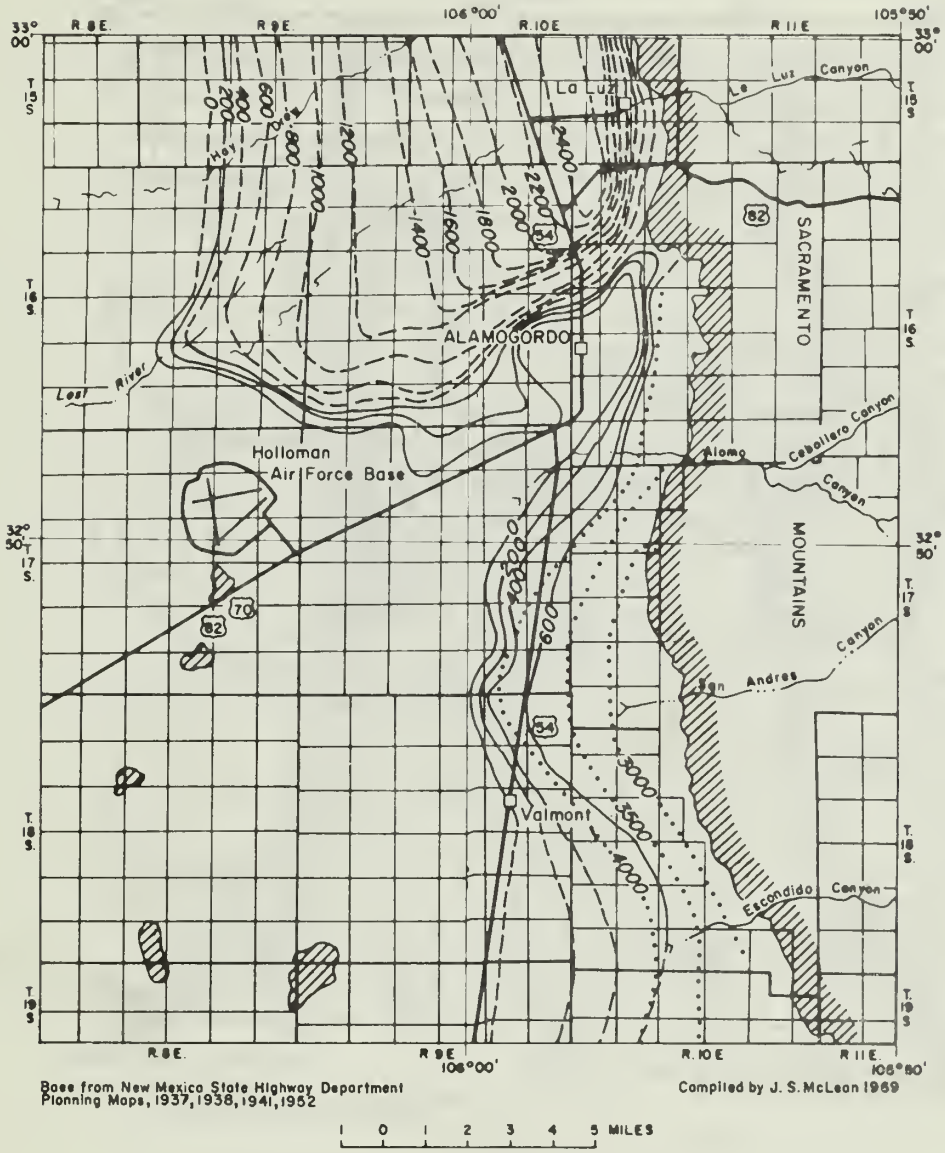


Figure 13.--Diagrammatic section C-C' in the vicinity of San Andres Canyon south of Alamogordo showing water-quality units.



EXPLANATION

600

Line showing thickness of the 1-3 g/l saline-water unit. Dashed where approximately located. Interval 200 feet.

3500
Contour

Shows altitude of the top of the 1-3 g/l saline-water unit. Contour interval 500 feet. Datum is mean sea level.

Boundary of alluvial deposits (adapted from Dane and Bachman, 1965, Geologic Map of New Mexico, scale: 1:500,000).

Figure 14.--Map of the Alamogordo area showing altitude and thickness of the 1-3 g/l saline-water unit.

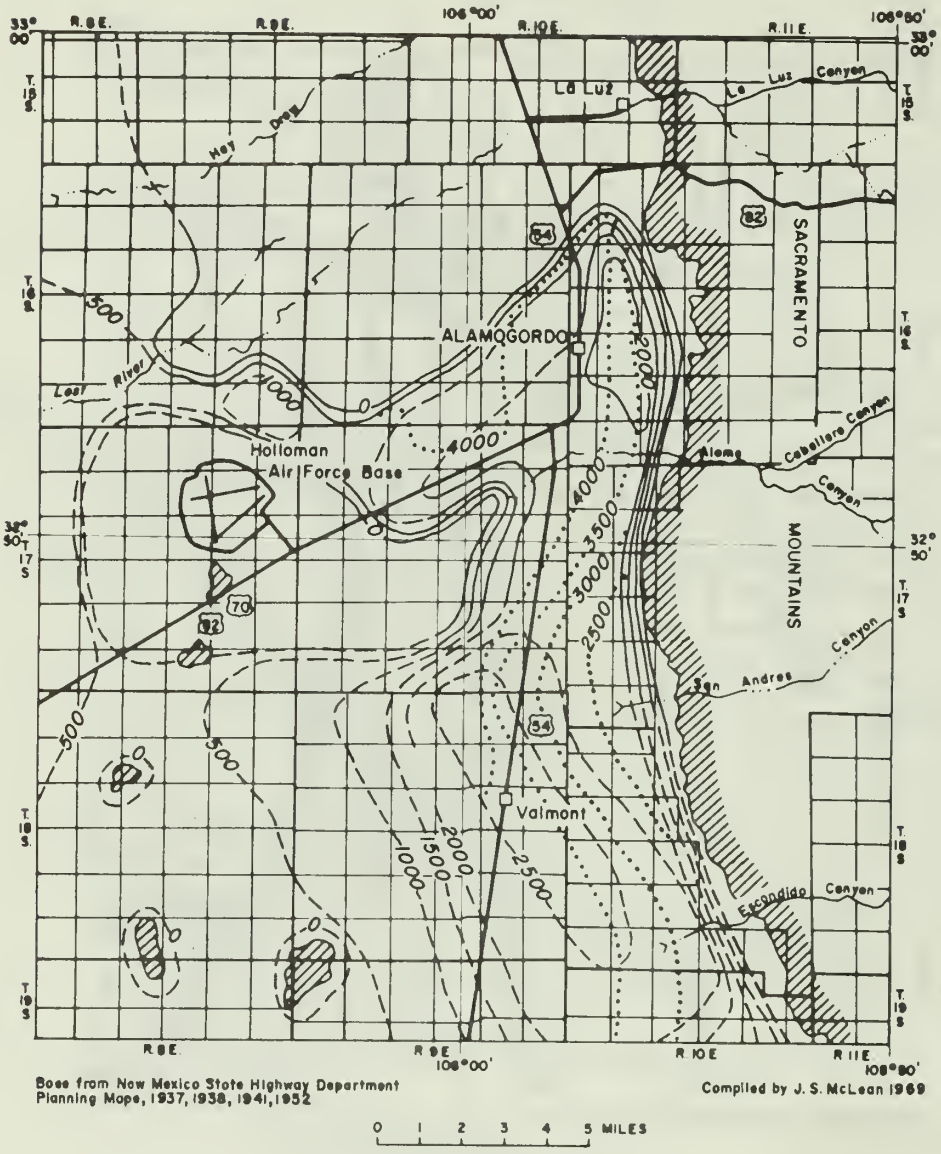


Figure 15.--Map of the Alamogordo area showing altitude and thickness of the 3-10 g/l saline-water unit.

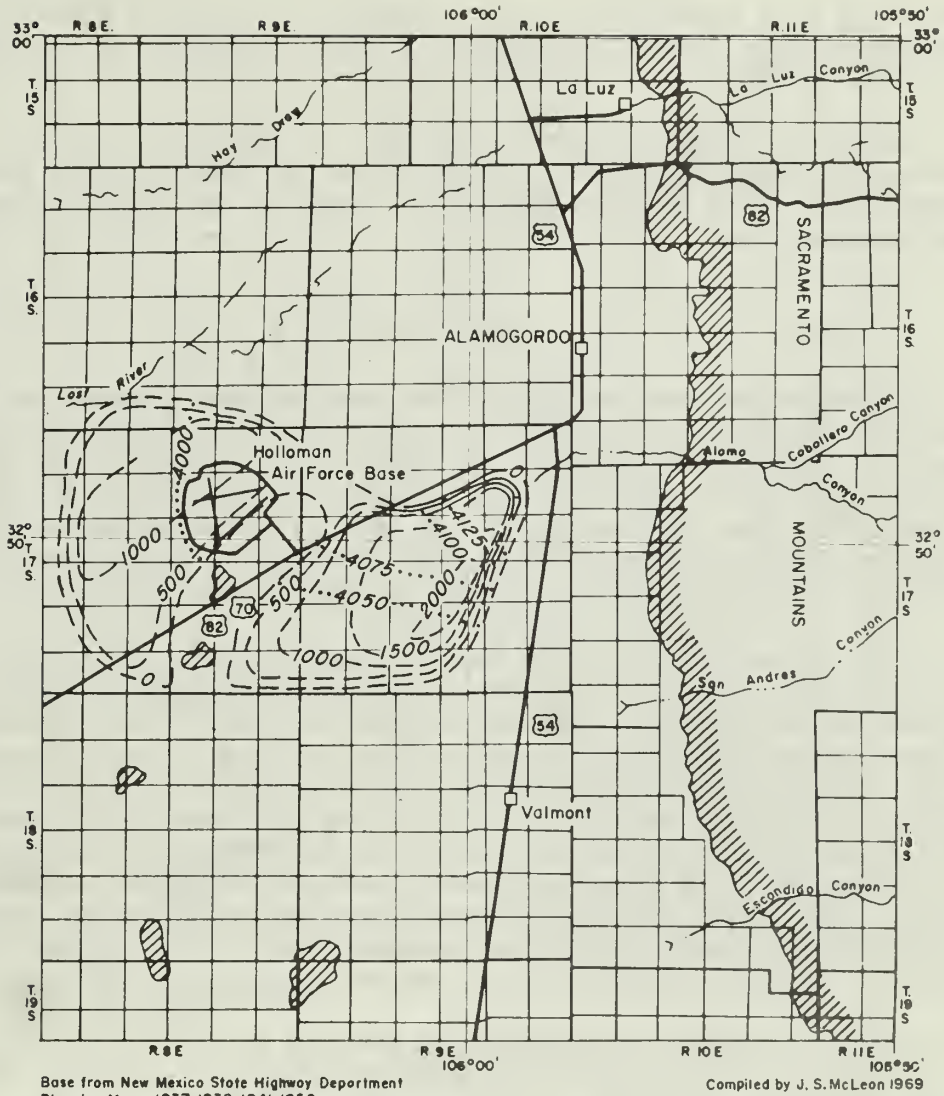


Figure 16.--Map of the Alamogordo area showing altitude and thickness of the 10-35 g/l saline-water unit.

One well in sec. 13, T. 17 S., R. 8 E., at Holloman Air Force Base Headquarters produced brine with a salinity of 50,300 mg/l from a depth of 110 feet. This sodium-chloride type brine may be associated with a structural zone indicated on seismic profiles in the Headquarters area that may have caused local ponding and evaporation of runoff.

Water with a wide range of salinity is present in the Alamogordo area--from fresh calcium magnesium sulfate water near the mountain front to sodium chloride brines at Holloman Air Force Base Headquarters.

Tularosa

The Tularosa area, as defined in this report, consists of the Tularosa and part of the Mescalero topographic map quadrangles (fig. 17). This area includes the community of Tularosa and surrounding farmland. Saline ground water is used extensively for irrigation in the Tularosa area. In 1969, 120 irrigation wells produced about 14,000 acre-feet of 1-3 g/l saline water from unconsolidated alluvial deposits west of the Sacramento Mountains.

The altitude of the top of consolidated bedrock (fig. 17) was inferred from a gravity survey with widely spaced lines made in November and December 1968 by the author. This survey gives an approximate indication of the alluvial thickness and bedrock configuration. A trough which may contain 3,000 feet of alluvial deposits parallels the front of the Sacramento Mountains. The alluvial deposits thin westward to Round Mountain where bedrock is exposed. West of Round Mountain the deposits thicken toward the central part of the basin. The exact configuration of the bedrock or the thickness of the alluvium cannot be determined without test drilling, coupled with a detailed seismic and gravity survey.

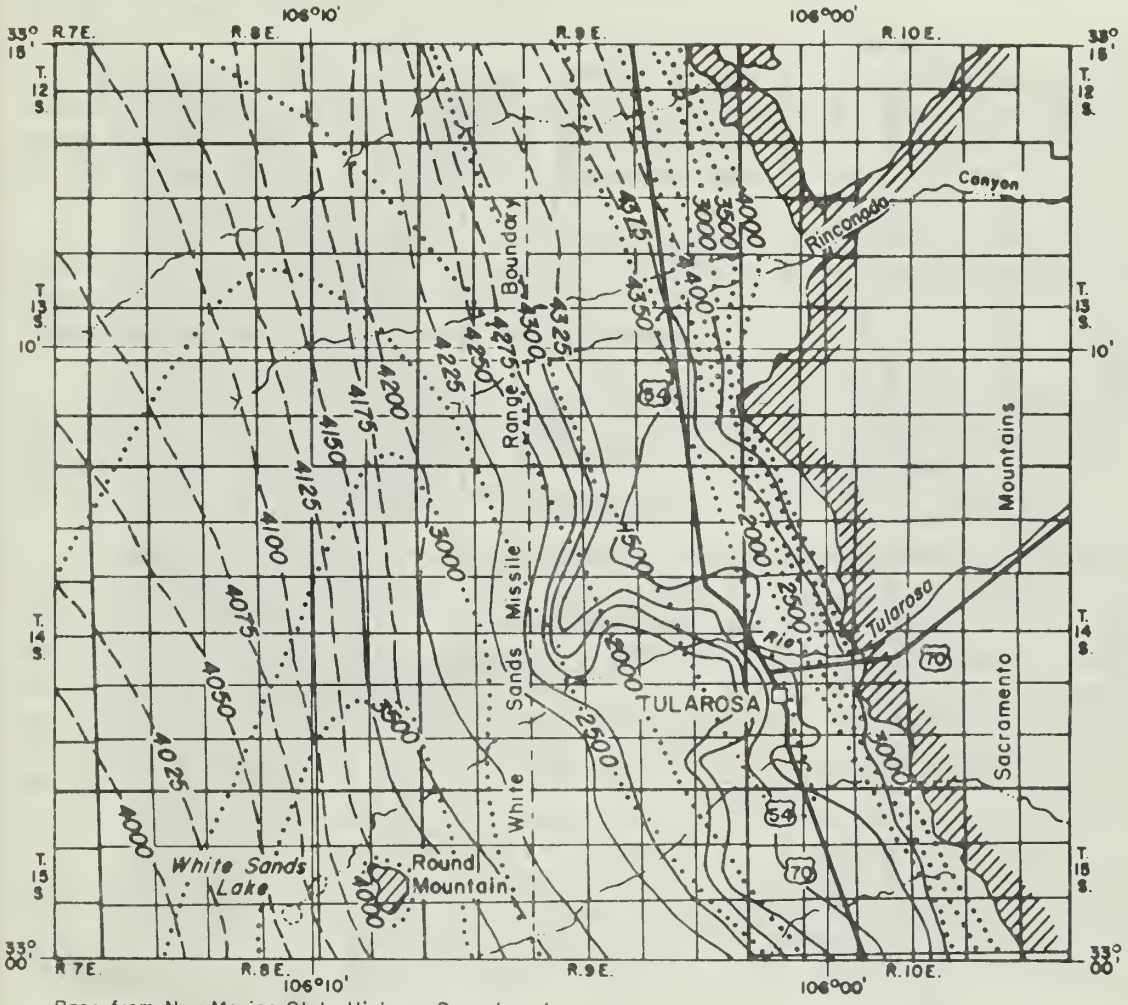
Figure 17 shows the altitude of the top of the saturated zone. The water table slopes from the mountain front to the basin, but the generally even gradient is altered locally by recharge to alluvial-fan deposits from the Rio Tularosa and intermittent streams and to a greater degree by discharge from wells west of Tularosa.

The yields of wells in the Tularosa area are highly variable (fig. 18) and range from less than 100 gpm to more than 1,200 gpm. The highest yields are from wells near the Rio Tularosa, where well sorted sand lenses occur.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PREPARED WITH THE COOPERATION OF
THE NEW MEXICO STATE ENGINEER OFFICE AND
THE OFFICE OF SALINE WATER
DEPARTMENT OF THE INTERIOR

TULAROSA BASIN
NEW MEXICO
SALINE GROUND-WATER INVESTIGATION



Base from New Mexico State Highway Department
Planning Maps, 1937, 1938, 1941, 1952

Compiled by J. S. McLean 1969

0 1 2 3 4 5 MILES

EXPLANATION

4225

Water-table Contour

Shows altitude of the water table. Dashed where approximately located. Contour interval 25 feet. Datum is mean sea level.

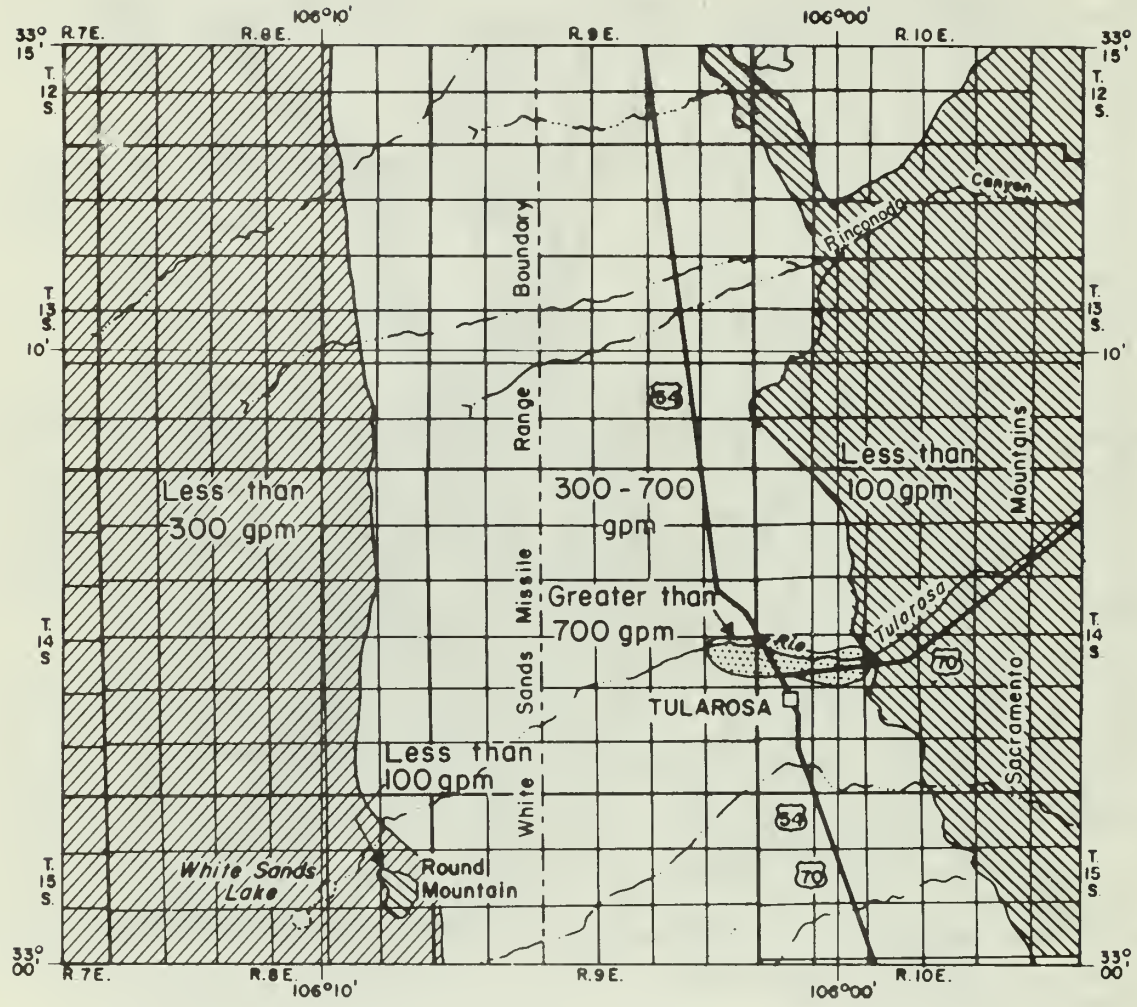
3000

Bedrock Contour

Shows altitude of the top of consolidated bedrock. Contour interval 500 feet. Datum is mean sea level.

Boundary of alluvial deposits (adapted from Dane and Bachman, 1965, Geologic Map of New Mexico, scale: 1:500,000).

Figure 17.--Map of the Tularosa area showing altitude of the top of consolidated bedrock and altitude of water table.



Base from New Mexico State Highway Department
Planning Maps, 1937, 1938, 1941, 1952

Compiled by J. S. McLean 1969

0 1 2 3 4 5 MILES

EXPLANATION

Line showing boundary of zone of estimated potential yield.

Figure 18.--Map of the Tularosa area showing estimated potential yield of water wells.

Well yields in the area average about 500 gpm. Specific capacities of wells range from 2.1 to 16 gpm/ft and average 5.5 gpm/ft. Two aquifer tests in the area gave transmissivities of 2,100 ft^2/day and 4,200 ft^2/day.

Information on well yield is sparse west of the White Sands Missile Range boundary. Finer grained deposits are present in the area, and it seems likely that a well 500 feet deep completed in these sediments would yield less than 300 gpm.

Little information is available on the yield of wells deeper than 500 feet. The two deep wells in the area do not have significantly higher yields than wells 500 feet deep. Poor construction may be responsible for the lower yields, however.

Ground water of less than 1 g/l salinity has not been found in the Tularosa area. It seems unlikely that any will be found because the salinity of water entering the alluvial deposits from the Rio Tularosa and other streams exceeds 1 g/l.

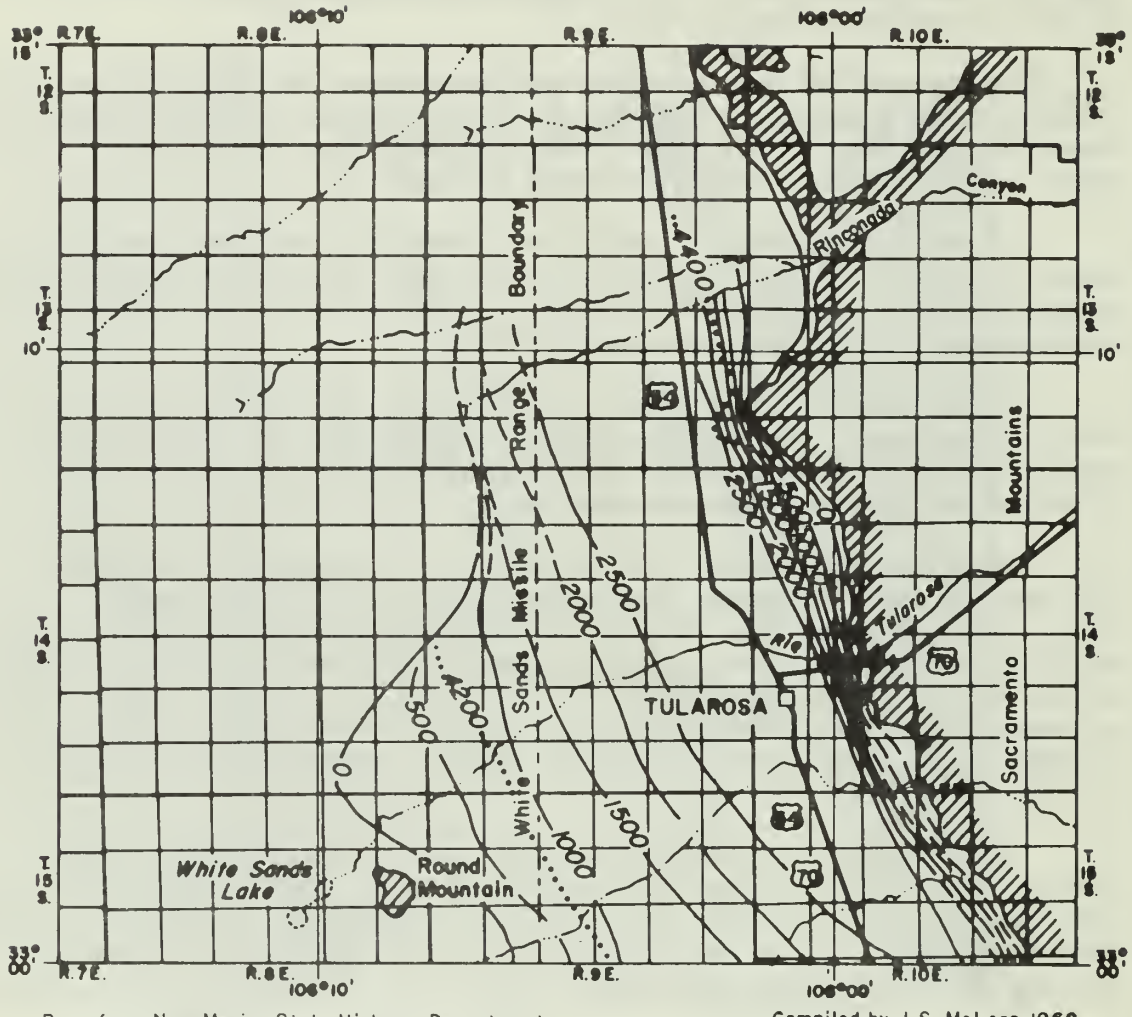
Nearly all the wells drilled west of the Sacramento Mountains and east of Round Mountain have encountered 1-3 g/l saline water (fig. 19). Electric logs of a 2,000-foot test hole in sec. 26, T. 14 S., R. 9 E. indicate this water-quality unit may be over 2,000 feet thick; also a well 1,440 feet deep in sec. 19, T. 14 S., R. 10 E. has a salinity of about 1,600 mg/l. The water in this unit is primarily a calcium sulfate type. Temperatures of water samples reportedly range from 15°C to 23°C.

The 3-10 g/l unit probably exists as a transition zone lying west of and beneath the 1-3 g/l unit (fig. 20). The thickness of this unit cannot be determined without test drilling. Chemical analyses from four wells and one spring indicate the water varies between a calcium sulfate and sodium chloride type.

No wells yielding more than 10 g/l water are known in the Tularosa area; however, such water probably exists west of and beneath the 3-10 g/l unit. Test drilling on part of the White Sands Missile Range would be required to determine the extent and thickness of this water-quality unit in the area.

Carrizozo

The Carrizozo area, for the purposes of this report, includes all or part of the following topographic map quadrangles: Carrizozo, Chihuahua Ranch, Capitan, Broken Back Crater, and Little Black Peak (fig. 21).



Base from New Mexico State Highway Department
Planning Maps, 1937, 1938, 1941, 1952

Compiled by J.S. McLean 1969

0 1 2 3 4 5 MILES

EXPLANATION

2000

Line showing thickness of the 1-3 g/l saline-water unit. Dashed where approximately located. Interval 500 feet.

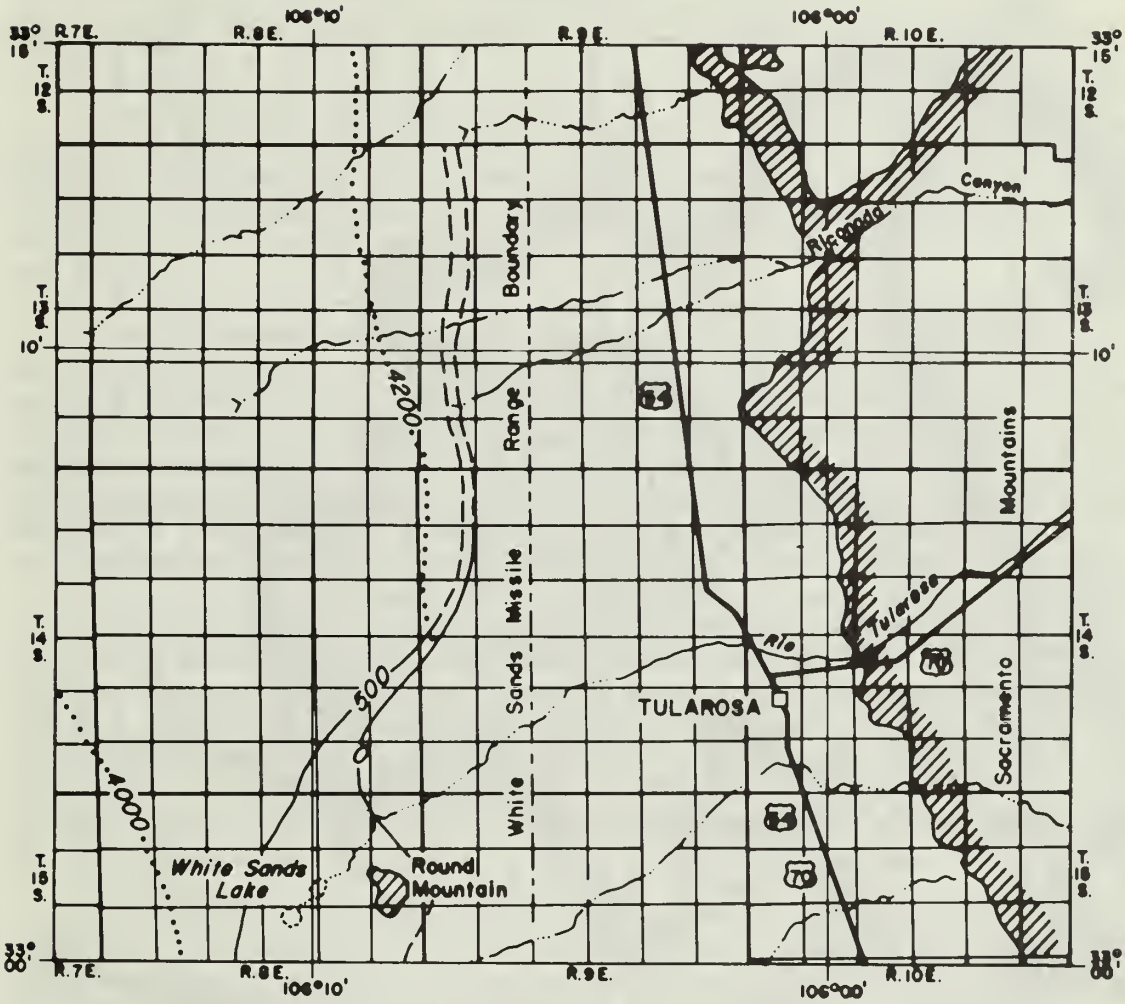
4200

Contour

Shows altitude of the top of the 1-3 g/l saline-water unit. Contour interval 100 feet. Datum is mean sea level.

Boundary of alluvial deposits (adapted from Dane and Bachman, 1965, Geologic Map of New Mexico, scale: 1:500,000).

Figure 19.--Map of the Tularosa area showing altitude and thickness of the 1-3 g/l saline-water unit.



Base from New Mexico State Highway Department Planning Maps, 1937, 1938, 1941, 1952

Compiled by J.S. McLean 1969

0 1 2 3 4 5 MILES

EXPLANATION

—500—

Line showing thickness of the 3-10 g/l saline-water unit. Dashed where approximately located. Interval 500 feet.

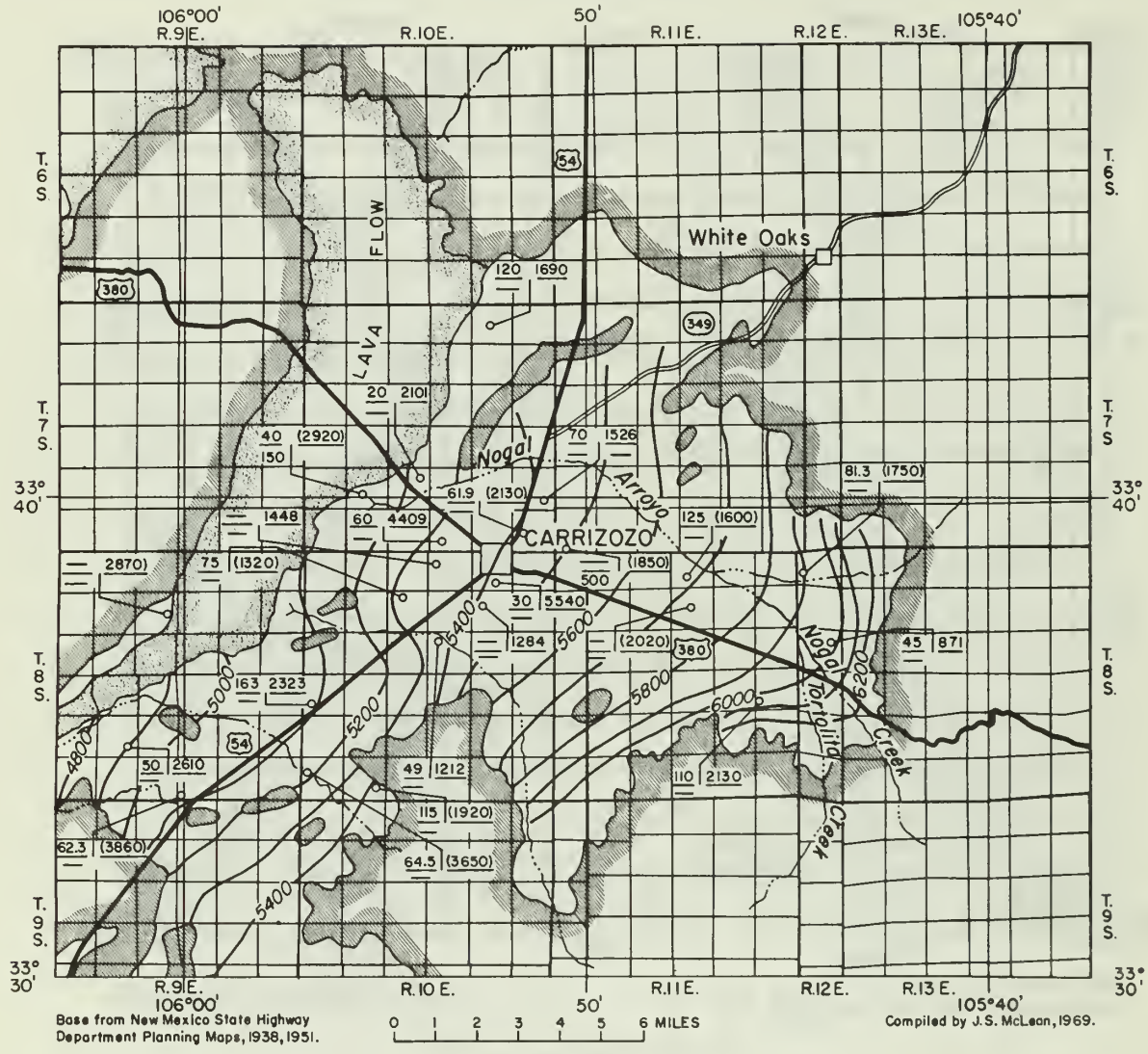
·····4200·····

Contour

Shows altitude of the top of the 3-10 g/l saline-water unit. Contour interval 100 feet. Datum is mean sea level.

Boundary of alluvial deposits (adapted from Dane and Bachman, 1965, Geologic Map of New Mexico: scale 1:500,000).

Figure 20.--Map of the Tularosa area showing altitude and thickness of the 3-10 g/l saline-water unit.



EXPLANATION

Depth of well, in feet — 40 (2920) — Dissolved solids content of water in milligrams per liter.
Yield, in gallons per minute — 150 — Well
() around number indicates value is specific conductance in micromhos at 25°C.

5400
Water-table contour

Shows altitude of the water table.
Contour interval 100 feet. Datum is mean sea level.

Boundary of alluvial deposits
(adapted from Dane and Bachman, 1965, Geologic Map of New Mexico, scale 1:500,000)

Figure 21.--Map of the Carrizozo area showing altitude of the water table, and location of selected wells in alluvium.

The saline-water resources of the Carrizozo area are limited and little used. Irrigation from ground-water sources in the area is limited. The largest withdrawals are from wells in secs. 13 and 14, T. 8 S., R. 10 E. that supply about 300 gpm to the community of Carrizozo.

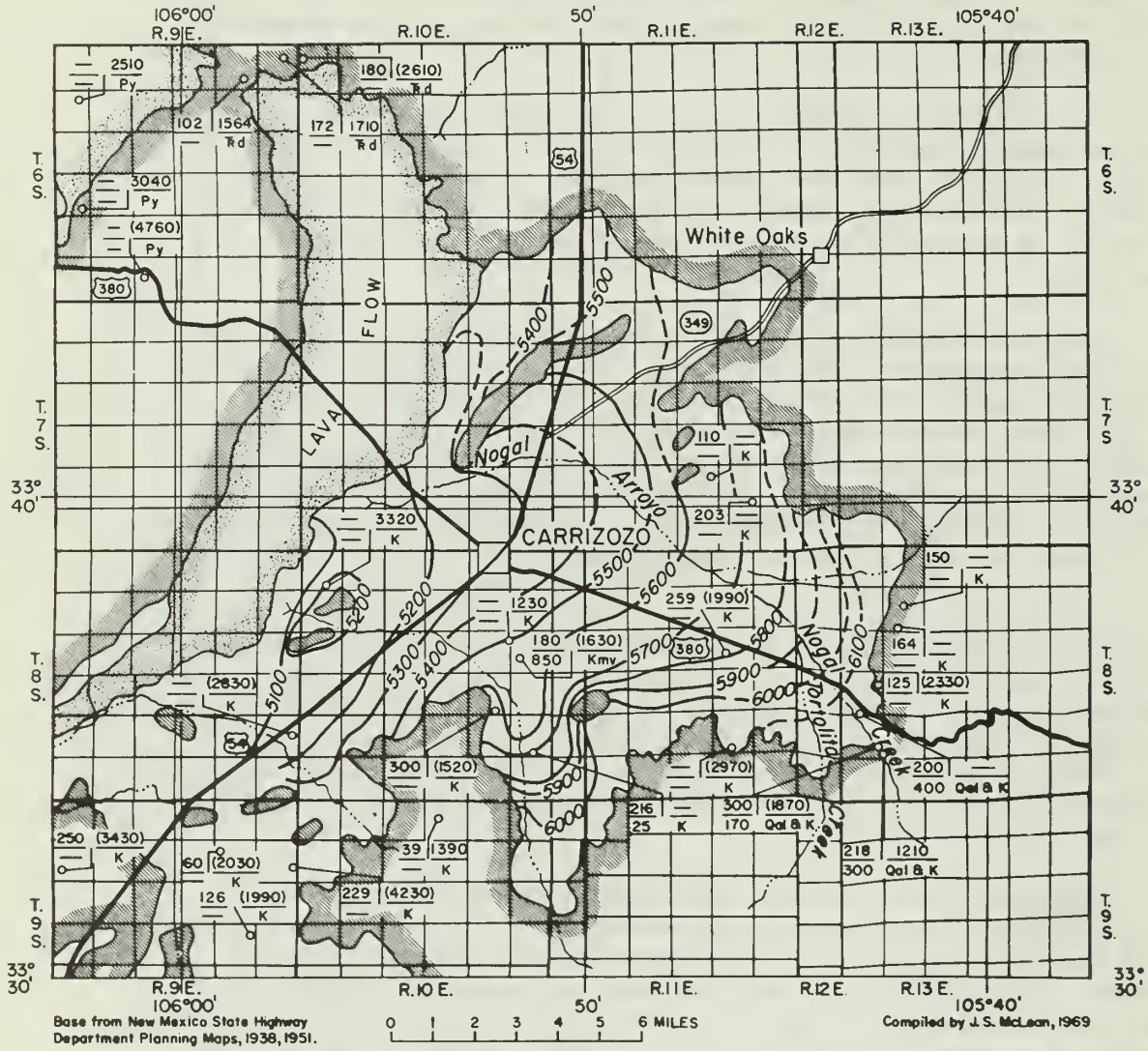
The principal aquifers are alluvial deposits of Quaternary age and the underlying rocks of Cretaceous age. The Dockum Group of Triassic age, and the Yeso Formation, San Andres Limestone and Glorieta Sandstone of Permian age yield small quantities of water to wells in the western part of the Carrizozo area and west of the area.

The Mesaverde Group of Cretaceous age underlies much of the area near Carrizozo. Wells in secs. 13 and 14, T. 8 S., R. 10 E., which supplement water piped from Bonito Lake to the community of Carrizozo during the summer, probably produce water from the Mesaverde Group (fig. 22). These wells reportedly yield 850 gpm when pumping begins in May, but possibly owing to a decrease in saturated thickness and interference between wells, yields decline to 150 gpm or less in August and September.

The surface deposits in much of the Carrizozo area consist of poorly sorted alluvial sediments generally less than 200 feet thick. Where saturated, the alluvial deposits yield as much as 500 gpm to wells. A well in sec. 8, T. 8 S., R. 10 E., reportedly yields 250 gpm from a saturated alluvial thickness of less than 30 feet. A well drilled recently in sec. 6, T. 8 S., R. 11 E., yields 240 gpm with a drawdown of 30 feet from saturated deposits 57 feet thick (fig. 21).

Generally, well yields range from a few gallons per minute from stock wells and springs to several hundred gallons per minute from municipal supply or irrigation wells during test pumping. Yields of wells 500 feet deep or less and completed in either deposits of Quaternary age or in Cretaceous rocks, or both, probably would not exceed 150 gpm per well. Cooper (1965) estimates that about 20,000 acre-feet per year of 1-3 g/l saline water could be obtained from the Carrizozo area. Information on yields from pre-Cretaceous rocks in the area is too sparse to estimate their potential as aquifers.

Nearly all the wells in the Carrizozo area are completed to a depth of 300 feet or less. In almost every instance these wells yield water containing 1 to 3 g/l dissolved solids. The exceptions are a group of shallow wells reported by Meinzer and Hare (1915) in secs. 2 and 6, T. 8 S., R. 10 E., and a well in sec. 34, T. 7 S., R. 10 E. Water from these wells ranged from



EXPLANATION

Depth of well, in feet
Reported yield, in gallons per minute
180 (1630) / 850 Kmv — Well
Dissolved-solids content of water in milligrams per liter. ( ) around number indicates value is specific conductance in micromhos at 25°C.
Principal aquifer

Principal aquifers

K, Cretaceous, undivided
Kmv, Mesaverde Group
Trd, Dockum Group
Py, Yeso Formation

5600 — Bedrock contour

Shows altitude of the top of consolidated Cretaceous "bedrock". Dashed where approximately located. Contour interval 100 feet. Datum is mean sea level.

Boundary of alluvial deposits

(adapted from Dane and Bachman, 1965, Geologic Map of New Mexico: scale 1:500,000)

Figure 22.--Map of the Carrizozo area showing altitude of the top of Cretaceous rocks, and location of wells in consolidated rocks.

3,171 to 6,935 mg/l salt content. Meinzer and Hare report fresh water from a shallow well in sec. 13, T. 8 S., R. 12 E. and from a well drilled by the Southern Pacific Railroad to a depth of 1,125 feet in sec. 2, T. 8 S., R. 10 E. The railroad well reportedly yielded water containing 762 mg/l dissolved solids.

Shallow water in the area is primarily a calcium sulfate type. Sodium chloride type water probably is present at depth. Reported ground-water temperatures in the area range from 16.7°C to 20.0°C.

Western margin of the Tularosa Basin

The western margin of the Tularosa Basin, as defined in this report, extends from Sweetwater Creek and Rhodes Canyon on the north through Lake Lucero to White Sands Missile Range Headquarters on the south (fig. 23).

Rocks, Precambrian through Tertiary in age, yield a few gallons per minute to wells and springs in the western part of the area. The most important and widely used aquifer in the area is the alluvium in the eastern part of the area, middle Tertiary to Holocene in age.

The alluvial deposits in the area occur as a veneer overlying the San Andres and Organ Mountain pediments and as very thick fill east of the pediments. A test hole in the NW¼NE¼NE¼ sec. 15, T. 22 S., R. 5 E., four miles northeast of White Sands Missile Range Headquarters, penetrated 6,015 feet of alluvial fill and did not reach bedrock. A general gravimetric reconnaissance of the area, from which the altitude of the top of consolidated bedrock was determined, indicates the existence of a basin southeast of Rhodes Canyon, in the vicinity of Lumley Lake, that may contain over 5,000 feet of alluvium (fig. 23).

The water table slopes steeply from the mountains on the west toward the basin, and gently from north to south in the basin. The effect of withdrawal of fresh water in well fields 0.5 to 2.5 miles north of the Headquarters and 2.5 miles southeast of the Headquarters is shown in the shape of the 3,850-foot water table contour shown on figure 23.

The variation in the yields of wells is shown in figure 24. Although variable throughout the area, the highest yields are generally obtained in a zone between the mountain front and the toe of the alluvial fans east of the mountains. Wells located in this area must be far enough east of the mountain front to obtain an adequate saturated thickness and far enough west of the lowest part of the basin to penetrate coarse fan deposits. This relationship is shown in T. 19 S., R. 5 E., where the east wells have yields

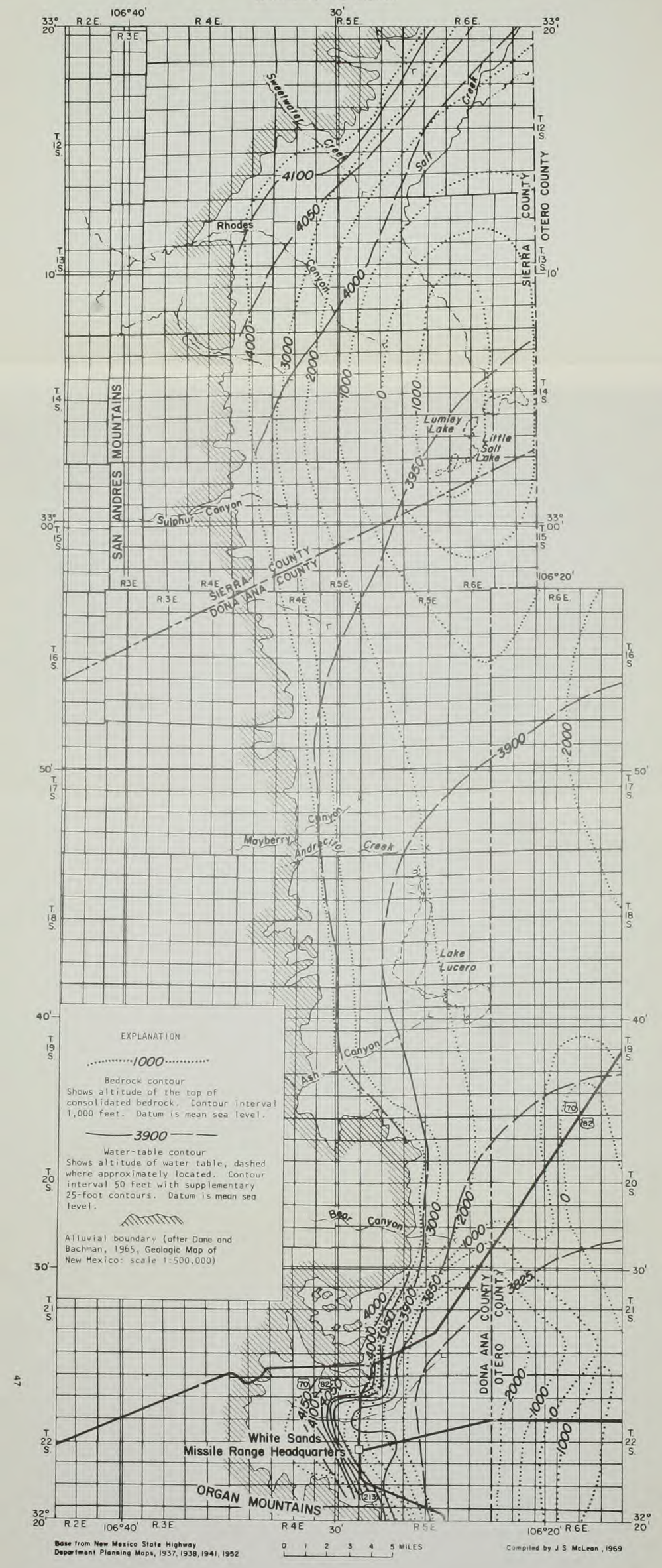

EXPLANATION
1000
Bedrock contour
Shows altitude of the top of consolidated bedrock. Contour interval 1,000 feet. Datum is mean sea level.
3900
Water-table contour
Shows altitude of water table, dashed where approximately located. Contour interval 50 feet with supplementary 25-foot contours. Datum is mean sea level.
Alluvial boundary (after Dane and Bachman, 1965, Geologic Map of New Mexico: scale 1:500,000)
Rhodes
Lumley Lake
Little Salt Lake
Lake Lucero
White Sands Missile Range Headquarters
ORGAN MOUNTAINS
SAN ANDRES MOUNTAINS
SIERRA COUNTY
OTERO COUNTY
DONA ANA COUNTY
Base from New Mexico State Highway Department Planning Maps, 1937, 1938, 1941, 1952
0 1 2 3 4 5 MILES
Compiled by J.S. McLean, 1969

Figure 23.--Map of the western margin of the Tularosa Basin showing altitude of the water table and altitude of the top of consolidated bedrock.

of 1.6 and 20 gpm, the middle well has a yield of 165 gpm with a drawdown of 39 feet in an aquifer having a transmissivity of 1,340 ft^2/day, and the west well has a yield of 235 gpm with a drawdown of 4.3 feet, and an aquifer transmissivity of 39,500 ft^2/day. This relationship also holds for the wells in T. 21 S., R. 5 E. The well in sec. 8, T. 22 S., R. 6 E., developed in fine sand and yielding 740 gpm with a drawdown of 60 feet, an aquifer transmissivity of 2,630 ft^2/day, appears to be an exception.

In general, maximum yields are obtained from the alluvial fan deposits bordering the mountains; however, high-yield wells can be developed in fine sand zones in the alluvium east of the fans if care is exercised in well-screen selection and well development.

Specific yield of the alluvial deposits in the White Sands Missile Range Headquarters area has been calculated (Herrick, 1960a, p. 98) to be 15 percent. Estimates in other areas of the Tularosa Basin give specific yields of 8 to 12 percent.

Fresh water occurs as a lens in the basin deposits east of the mountain front. The relation of water-quality zones is shown in figures 25-30. The thickest fresh-water section lies adjacent to the mountain front. Where granitic rocks are exposed, the fresh-water lens in the alluvium to the east is more extensive and reaches a maximum thickness of 1,800 feet in the reentrant at White Sands Missile Range Headquarters. The lens thins to the east and north of the Headquarters area. Generally, more saline water lies beneath and to the east of the fresh-water zone. In the northern part of the area where the rocks of contributing drainage areas and the alluvial deposits contain gypsum and other soluble materials, the fresh-water lens is either reduced in size or is absent.

The 1 to 3 g/l saline-water unit appears to exist as a thin transitional zone throughout most of the area (fig. 31). The maximum thickness of this water-quality unit occurs in a well drilled 8 miles northeast of White Sands Missile Range Headquarters. A 140-foot integrated sample from 109 to 249 feet in the well contained 1,670 mg/l. An electric log of the well indicates that this zone may extend to 450 feet, giving a thickness of 341 feet of 1-3 g/l water in this well. Depths from which slightly saline water has been sampled in the area vary from 109 to 1,016 feet. Indirect evidence indicates the zone exists at depths up to 2,000 feet in the Headquarters area. The 1 to 3 g/l saline water is predominantly a calcium sulfate to sodium chloride type. Sample temperatures range from 21.8°C to 27.8°C.

The 3 to 10 g/l saline-water unit reaches maximum thickness southeast of the White Sands Missile Range Headquarters and southeast of Rhodes Canyon, as shown in figure 32.

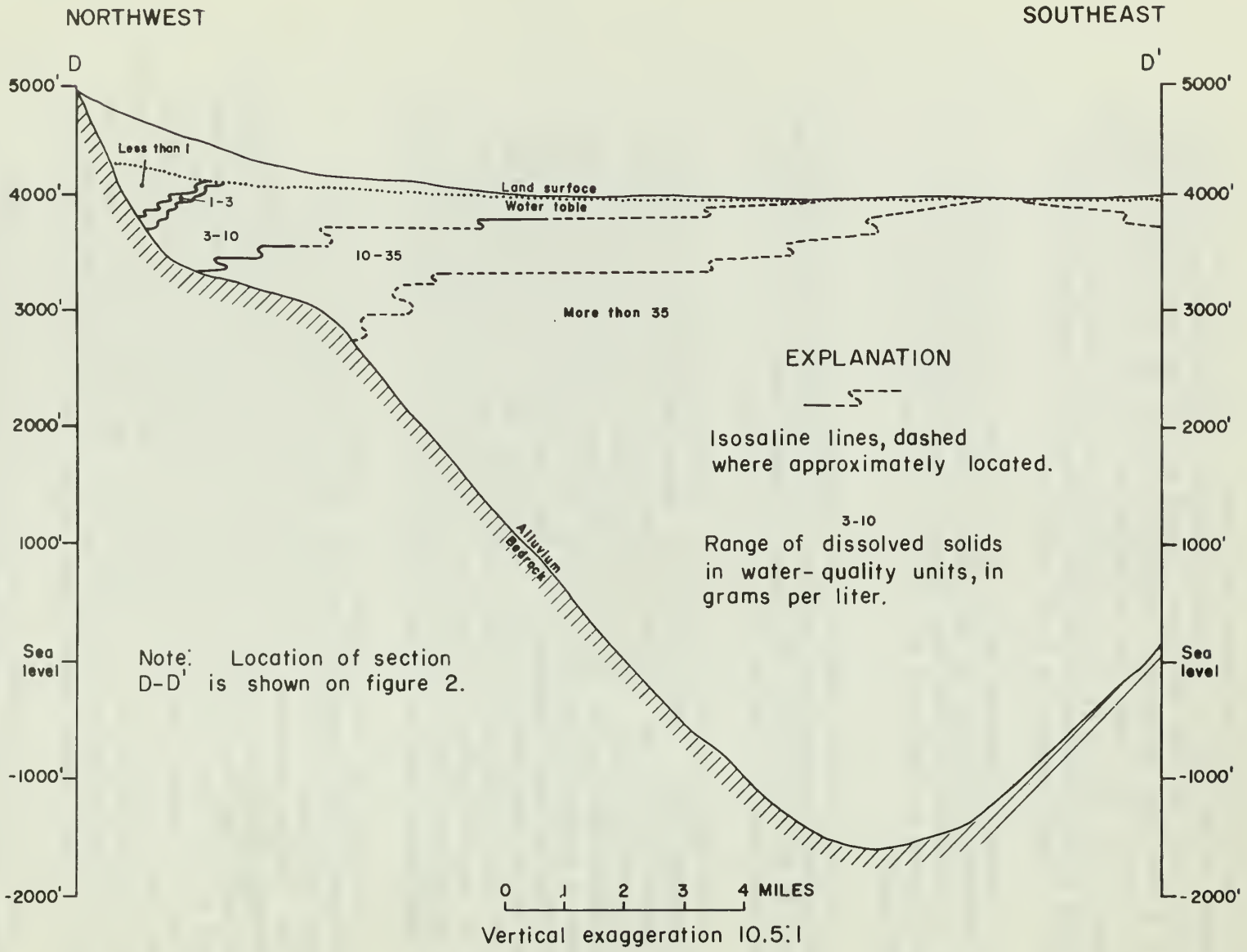


Figure 25.--Diagrammatic section D-D' at Rhodes Canyon showing water-quality units.

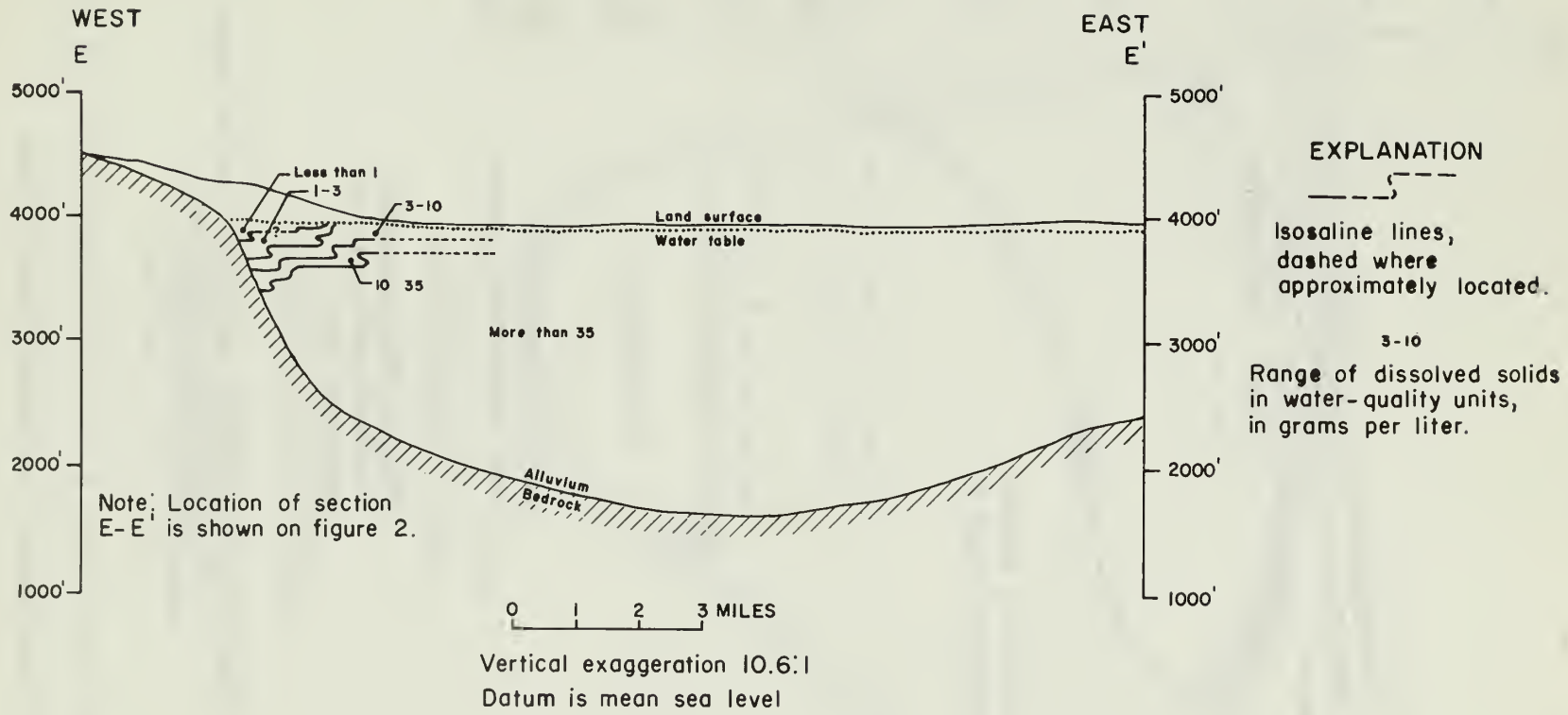
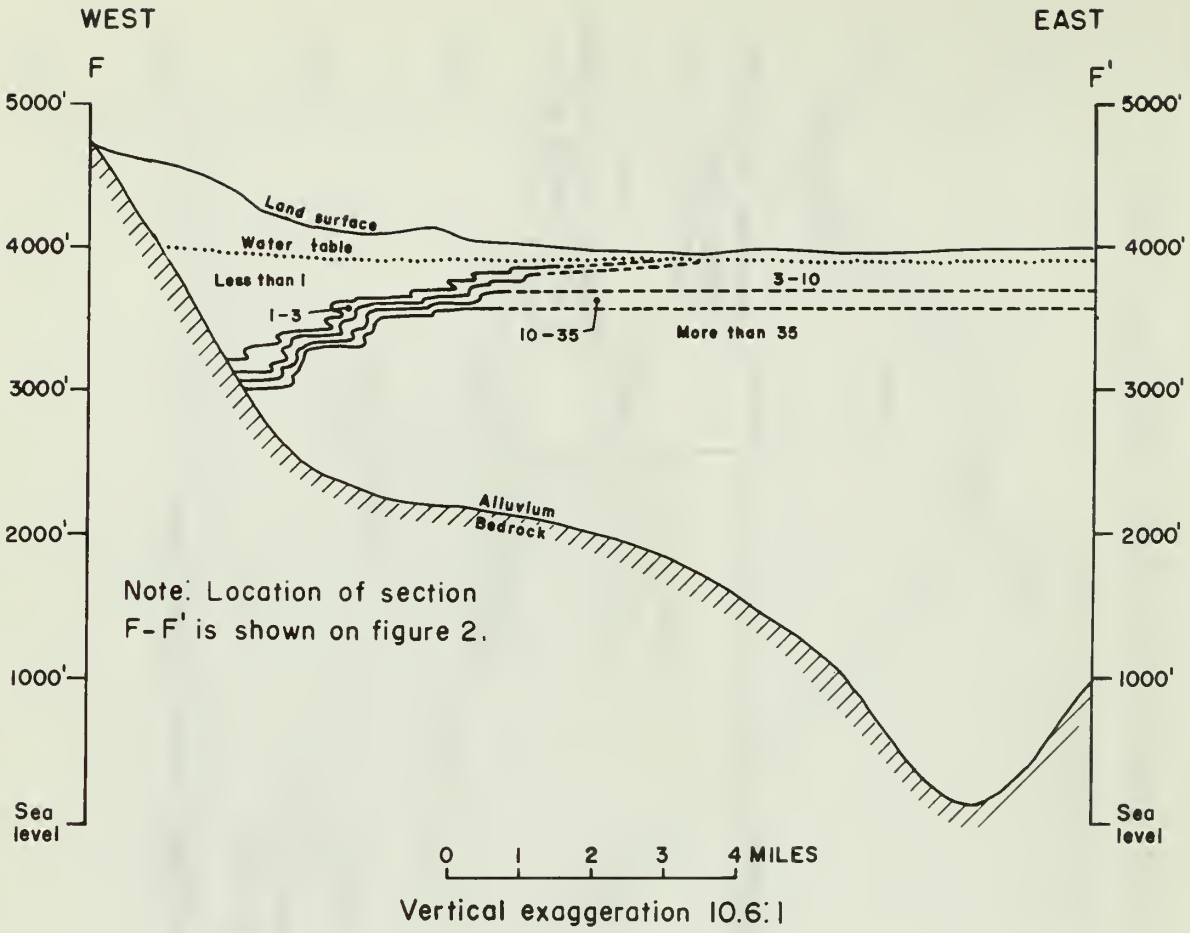


Figure 26.--Diagrammatic section E-E' at the south edge of T. 16 S., showing water-quality units.



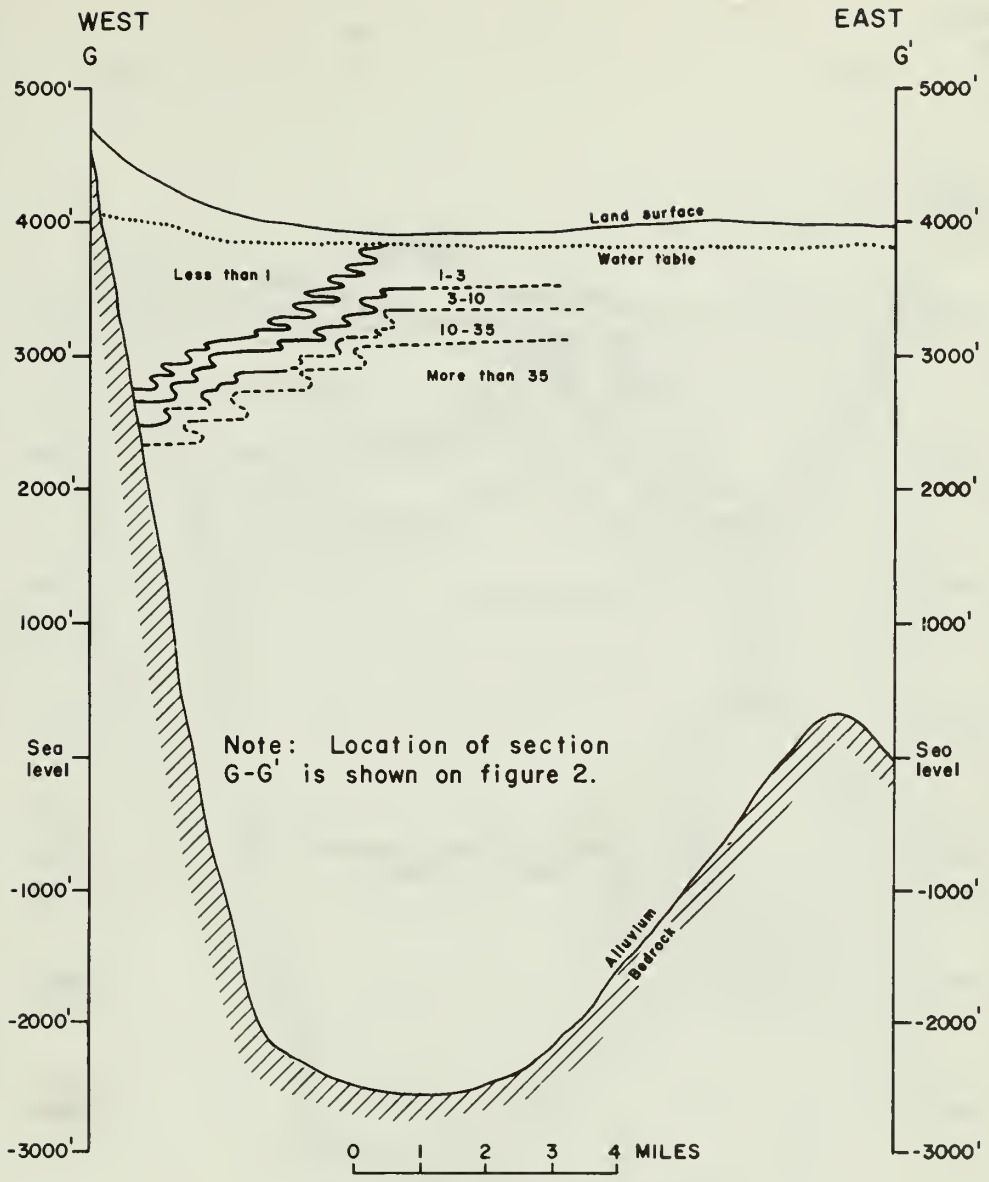
EXPLANATION

Isosaline lines, dashed where approximately located.

1-3

Range of dissolved solids in water-quality units, in grams per liter.

Figure 27.--Diagrammatic section F-F' at Ash Canyon showing water quality units.



EXPLANATION

Isosaline lines, dashed where approximately located.

10-35

Range of dissolved solids in water-quality units, in grams per liter.

Figure 28. — Diagrammatic section G-G' 5 miles north of White Sands Missile Range Headquarters showing water-quality units.

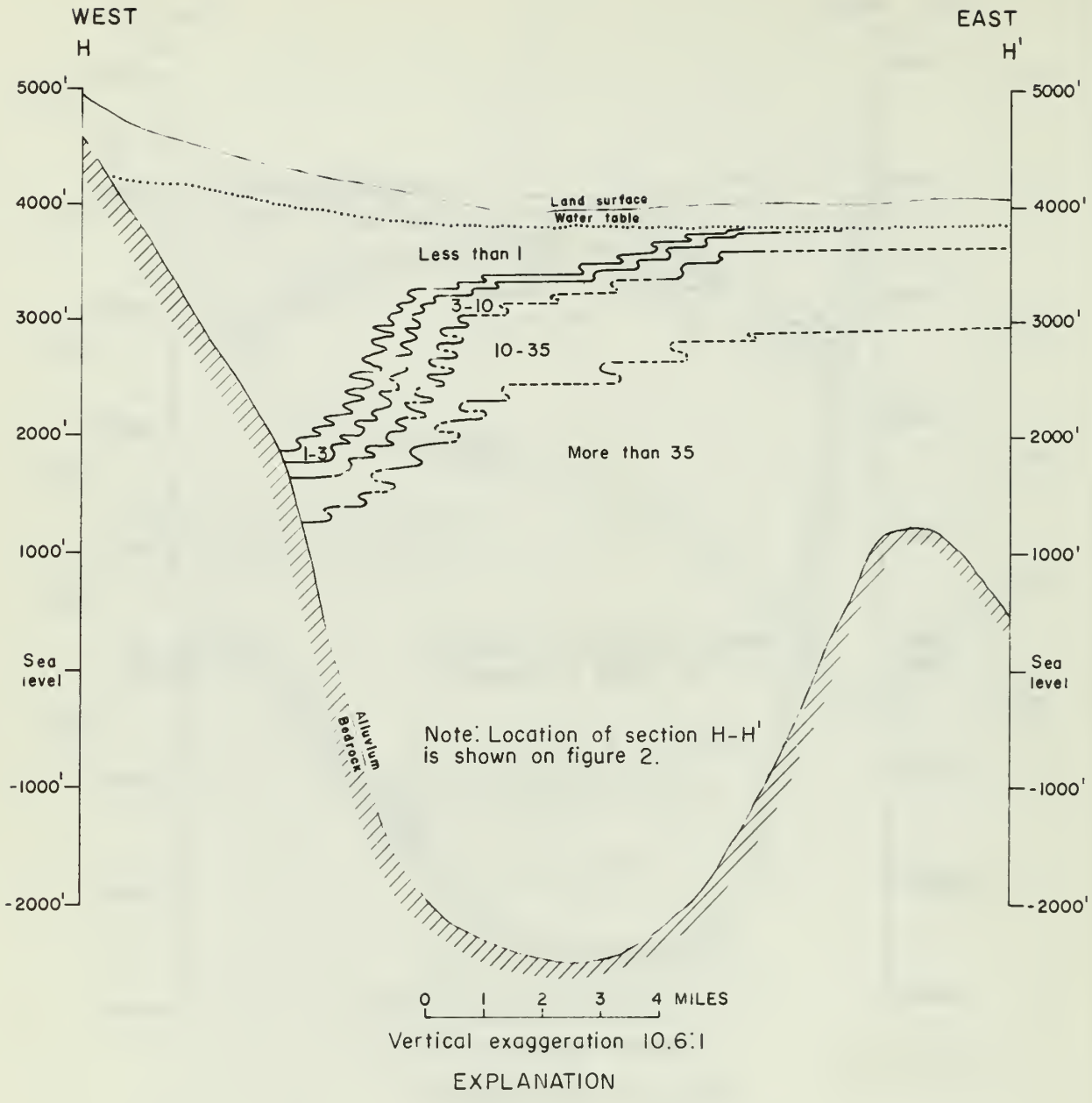


Figure 29.-- Diagrammatic section H-H' at White Sands Missile Range Headquarters showing water-quality units.

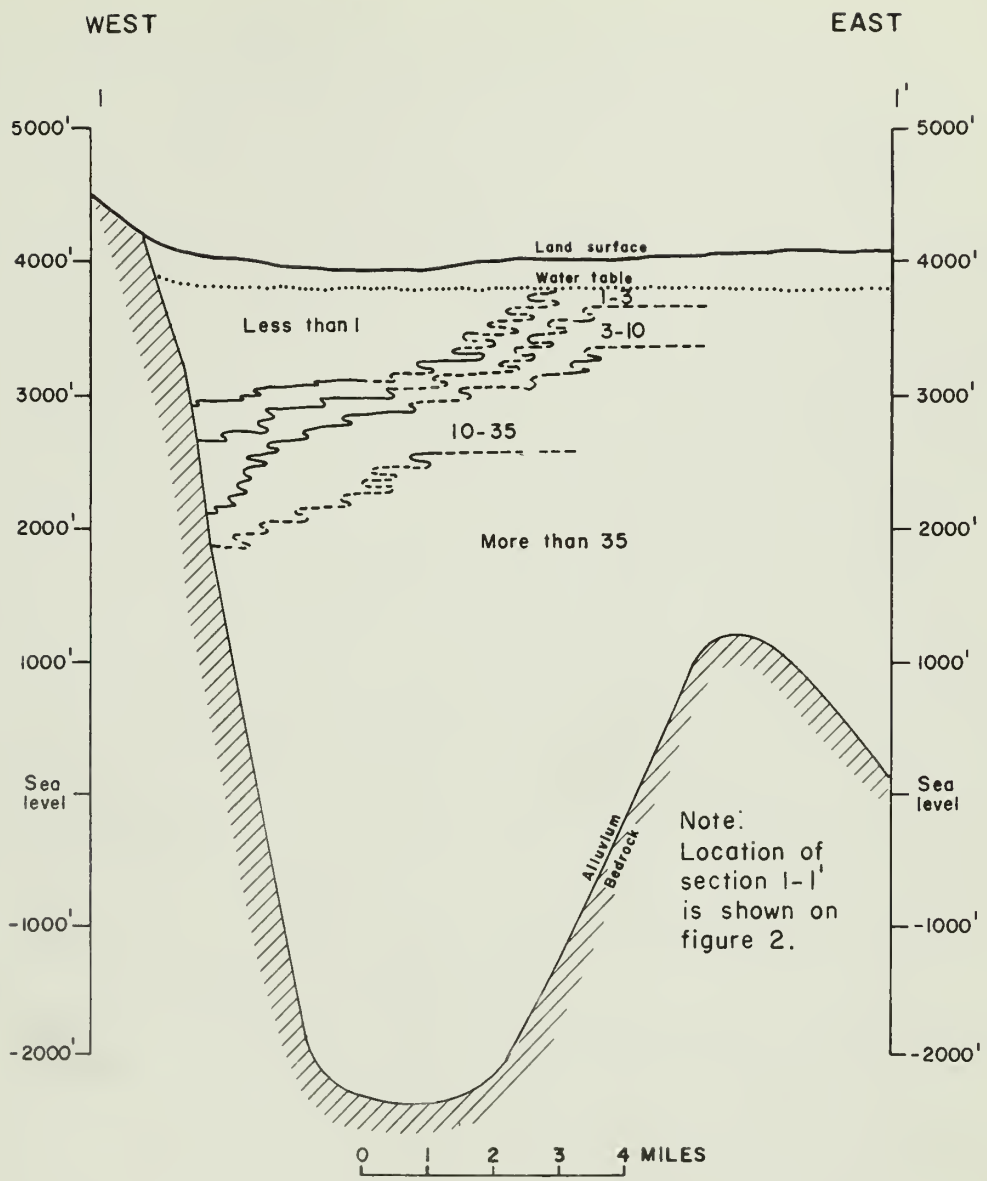


Figure 30.—Diagrammatic section 1-1' 3 miles south of White Sands Missile Range Headquarters showing water-quality units.

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THE OFFICE OF SALINE WATER
DEPARTMENT OF THE INTERIOR

TULAROSA BASIN
NEW MEXICO
SALINE GROUND-WATER INVESTIGATION

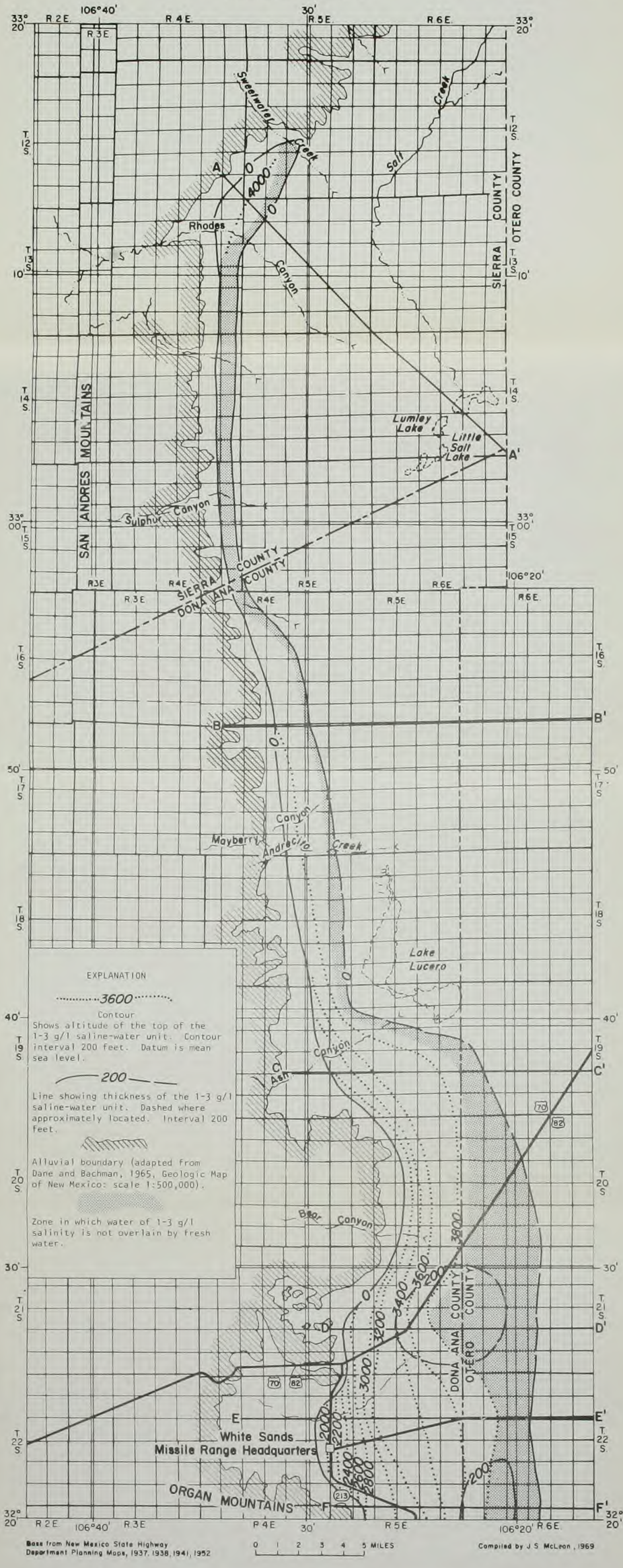
EXPLANATION
3600
Contour
Shows altitude of the top of the 1-3 g/l saline-water unit. Contour interval 200 feet. Datum is mean sea level.
200
Line showing thickness of the 1-3 g/l saline-water unit. Dashed where approximately located. Interval 200 feet.
Alluvial boundary (adapted from Dane and Bachman, 1965, Geologic Map of New Mexico: scale 1:500,000).
Zone in which water of 1-3 g/l salinity is not overlain by fresh water.
Sweetwater Creek
Salt Creek
Rhodes Canyon
Lumley Lake
Little Salt Lake
Sulphur Canyon
SAN ANDRES MOUNTAINS
SIERRA COUNTY
DONA ANA COUNTY
OTERO COUNTY
Mayberry Canyon
Andrecito Creek
Lake Lucero
Ash Canyon
Bear Canyon
White Sands Missile Range Headquarters
ORGAN MOUNTAINS
Base from New Mexico State Highway Department Planning Maps, 1937, 1938, 1941, 1952
0 1 2 3 4 5 MILES
Compiled by J. S. McLean, 1969

Figure 31.--Map of the western margin of the Tularosa Basin showing altitude and thickness of the 1-3 g/l saline-water unit.

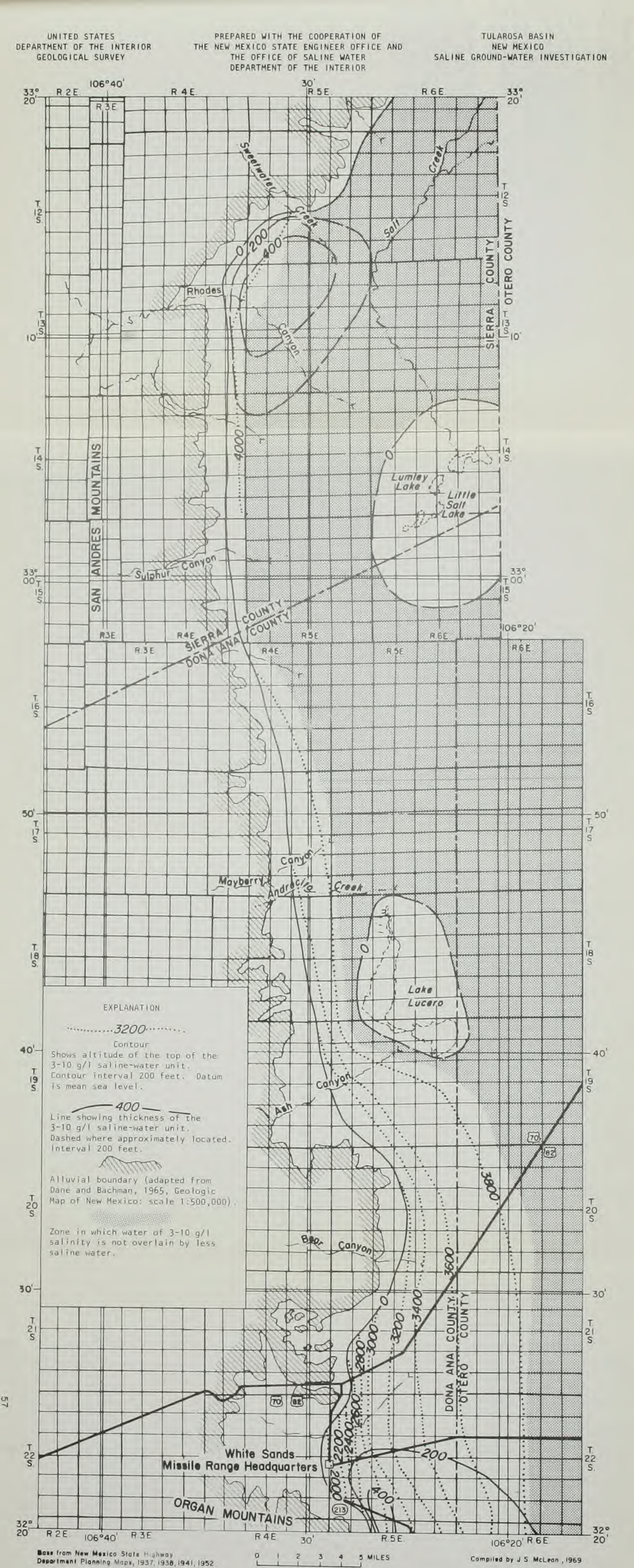

Figure 32.--Map of the western margin of the Tularosa Basin showing altitude and thickness of the 3-10 g/l saline-water unit.

Water of sodium chloride, sodium sulfate, and calcium chloride type are included in this saline-water unit. Reported sample temperatures range from 25.6°C to 26.7°C.

Water of 10 to 35 g/l salinity occurs in the central part of the basin and beneath the less saline deposits east of the mountain front (fig. 33). A well in sec. 8, T. 22 S., R. 6 E., has been used in saline-water irrigation experiments (Stewart, 1967). The dissolved-solids concentration of the water from this well reportedly increased from 9,662 to 16,110 mg/l during the three years of pumping. The sampled water is a calcium sulfate to sodium chloride type. Sample temperatures ranged from 25°C to 33°C.

Brines (greater than 35 g/l salinity) occur at shallow depths near the "alkali flats" and ephemeral lakes (such as Lake Lucero) in the east part of the area. Brine is also encountered beneath less saline water in most of the area. The most concentrated brine found was in a test hole in sec. 15, T. 22 S., R. 5 E. The sample from 2,590 to 3,700 feet contained 112 g/l. The brine is a typical sodium chloride type, and the sample temperatures ranged from 25°C to 54°C.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PREPARED WITH THE COOPERATION OF
THE NEW MEXICO STATE ENGINEER OFFICE AND
THE OFFICE OF SALINE WATER
DEPARTMENT OF THE INTERIOR

TULAROSA BASIN
NEW MEXICO
SALINE GROUND-WATER INVESTIGATION

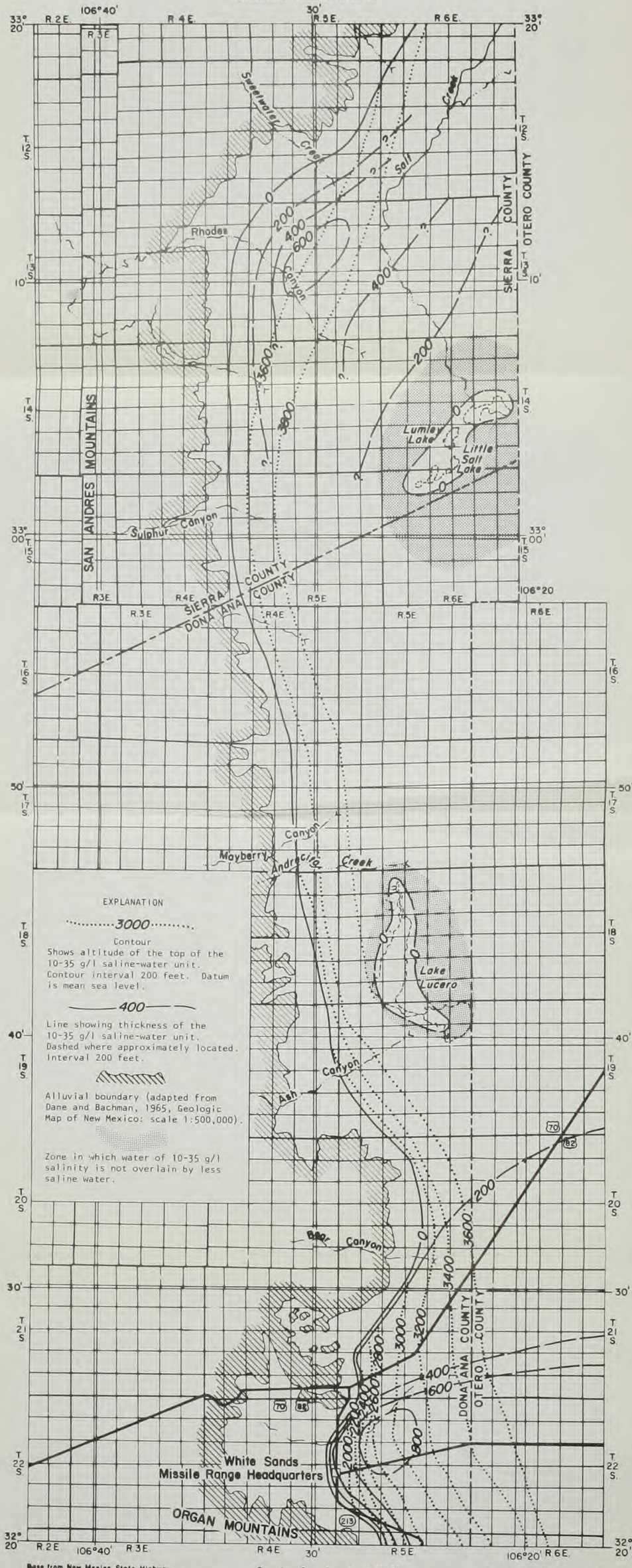

Figure 33.--Map of the western margin of the Tularosa Basin showing altitude and thickness of the 10-35 g/l saline-water unit.

Selected references

Bachman, G. O., 1968, Geology of the Mockingbird Gap quadrangle, Lincoln and Socorro Counties, N. Mex., U.S. Geol. Survey Prof. Paper 594-J, 43 p., 3 pl.

Baldwin, Brewster, 1963, Part 2, Geology, in Geology and water resources of the Santa Fe area, New Mexico: U.S. Geol. Survey, Water-Supply Paper 1525, p. 21-89.

Bjorklund, L. J., 1957, Reconnaissance of ground-water conditions in the Crow Flats area, Otero County, New Mexico: N. Mex. State Engineer Tech. Rept. 8, 19 p.

Bodine, M. W., Jr., 1956, Geology of Capitan coal field, Lincoln County, New Mexico: N. Mex. Inst. Min. and Tech., State Bur. Mines and Mineral Res. Circ. 35, 105 p., 25 pl., 3 illus.

Clebsch, Alfred Jr., 1960, Availability of ground water at Gran Quivira National Monument, New Mexico: U.S. Geol. Survey open-file rept., 38 p., 3 figs.

Conover, C. S., Herrick, E. H., Hood, J. W., and Weir, J. E., Jr., 1955, The occurrence of ground water in south-central New Mexico, in New Mexico Geol. Soc. Guidebook, 6th Field Conf., South-Central New Mexico, 1955, p. 108-120.

Cooper, J. B., 1958, Ground water in the vicinity of Carrizozo, Lincoln County, New Mexico: U. S. Geol. Survey open-file rept., 32 p.

———1965, Ground-water resources of the northern Tularosa Basin near Carrizozo, Lincoln County, New Mexico: U.S. Geol. Survey HA-193, 1 p.

Dane, C. H., and Bachman, G. O., 1958, Preliminary geologic map of the southeastern part of New Mexico: U.S. Geol. Survey Misc. Geol. Inv. Map I-256.

———1965, Geologic map of New Mexico: Washington, D. C., U. S. Geol. Survey, 2 sheets, scale 1:500,000.

Davis, L. V., and Busch, F. E., 1965, Summary of hydrologic investigations by the United States Geological Survey at White Sands Missile Range, New Mexico: U. S. Geol. Survey open-file rept., 1968, 299 p., 27 figs.

Doty, G. C., 1968a, Summary of test wells drilled for MAR site water supply, White Sands Missile Range, New Mexico: U.S. Geol. Survey open-file rept., 20 p., 5 figs.

———1968b, Summary of production wells drilled for MAR site water supply, White Sands Missile Range, New Mexico: U.S. Geol. Survey open-file rept., 1968, 19 p., 6 figs.

———1968c, Test wells in the Post Area, White Sands Missile Range, Dona Ana County, New Mexico: U.S. Geol. Survey open-file rept., 50 p., 16 figs.

———1968d, Phase I test wells, White Sands Missile Range, Dona Ana County, New Mexico: U.S. Geol. Survey open-file rept., 39 p., 12 figs.

———1968e, Test wells drilled at Mockingbird Gap, Socorro County, New Mexico, June to October 1965: U.S. Geol. Survey open-file rept., 23 p., 6 figs.

———1968f, Summary of wells drilled by White Sands Missile Range from June 1962 to January 1965: U.S. Geol. Survey open-file rept., 52 p., 13 figs.

Dunham, K. C., 1935, The geology of the Organ Mountains: New Mexico Bur. Mines Bull. 11, 272 p., 21 figs.

Foster, R. W., and Stipp, T. F., 1961, Preliminary geologic and relief map of the Precambrian rocks of New Mexico: N. Mex. Bur. Mines and Mineral Res. Circ. 57, 37 p.

Hantush, M.S., 1955, Preliminary quantitative study of the Roswell ground-water reservoir, New Mexico: N. Mex. Inst. Min. and Tech., State Bur. Mines and Mineral Res., 118 p.

Hawley, J. W., and Kottlowski, F. E., 1969, Quaternary geology of the south-central New Mexico Border Region, in Border Stratigraphy Symposium: N. Mex. Bur. Mines and Mineral Res. Circ. 104, p. 89-104, 5 figs.

Hawley, J. W., Kottlowski, F. E., Seager, W. R., King, W. E., Strain, W. S., and LeMone, D. V., 1969, The Santa Fe Group in the south-central New Mexico border region, in Border Stratigraphy Symposium: N. Mex. Bur. Mines and Mineral Res. Circ. 104, p. 52-76, 5 figs.

Hendrickson, G. E., 1949, Ground-water resources of the Carrizozo area, New Mexico: U.S. Geol. Survey open-file rept., 14 p., 1 fig.

Herrick, C. L., 1904, Lake Otero, an ancient salt lake in southeastern New Mexico: Am. Geologist, v. 34, p. 174-189.

Herrick, E. H., 1960a, Ground-water resources of the headquarters (cantonment) area, White Sands Proving Ground, Dona Ana County, New Mexico: U.S. Geol. Survey open-file rept., 203 p., 33 figs.

———1960b, Reconnaissance of ground-water conditions southeast of Valmont, Otero County, New Mexico: U.S. Geol. Survey open-file rept., 5 p., 1 pl.

Herrick, E. H., and Davis, L. V., 1965, Availability of ground water in the Tularosa Basin and adjoining areas, New Mexico and Texas: U. S. Geol. Survey HA-191, 2 p.

Herrick, E. H., and others, 1960, Appraisal of ground-water resources of Tularosa Basin and adjoining areas, New Mexico and Texas: U.S. Geol. Survey open-file rept., 195 p., 4 figs.

Hogan, C. S., and Sipes, L. D., Jr., 1966, Rock properties of Permian Basin formations, in Oil and Gas Fields in West Texas Symposium, 1966: West Texas Geological Soc., 2 p.

Hood, J. W., 1956, Summary of results of ground-water investigations in the vicinity of Boles well field, Otero County, New Mexico: U. S. Geol. Survey open-file rept., 17 p.

———1959, Ground water in the Tularosa basin, New Mexico, in Guidebook for Joint Field Conf., Permian Basin Sec., Soc. Econ. Paleontologists and Mineralogists and Roswell Geol. Soc., in the Sacramento Mts. of Otero County, N. Mex., p. 236-250.

———1960, Ground water in the vicinity of the Atlas site, Holloman Air Force Base, Otero County, N. Mex.: U.S. Geol. Survey open-file rept., 38 p., 4 figs.

———1963, Ground-water investigations at White Sands Missile Range, New Mexico, July 1960-June 1962: U.S. Geol. Survey open-file rept., 1968, 153 p., 28 figs.

Hood, J. W., and Herrick, E. H., 1962, Water resources of the Three Rivers area, Otero and Lincoln Counties, New Mexico: U.S. Geol. Survey open-file rept., 3 p., 3 figs.

———1965, Water resources of the Three Rivers area, Otero and Lincoln Counties, New Mexico: U.S. Geol. Survey HA-192, 1 p.

Hood, J. W., and Kister, L. R., 1960, Saline-water resources of New Mexico: U.S. Geol. Survey Water-Supply Paper 1601, 67 p.

Kelly, T. E., Myers, B. N., and Hershey, L. A., 1970, Preliminary report on the saline ground-water resources of the Rio Grande basin--a pilot study: (in preparation).

King, W. E., Hawley, J. W., Taylor, A. M., and Wilson, R. P., 1969, Hydrogeology of the Rio Grande Valley and adjacent intermontane areas of southern New Mexico: Water Resources Research Inst. Rept. 6, 141 p., 6 figs., 1 pl.

Knowles, D. B., and Kennedy, R. A., 1958, Ground-water resources of the Hueco Bolson northeast of El Paso, Texas: U. S. Geol. Survey Water-Supply Paper 1426, 186 p.

Kottlowski, F. E., 1960, Summary of Pennsylvanian sections in southwestern New Mexico and southeastern Arizona: State Bur. Mines and Mineral Res. Bull. 66, 187 p.

Kottlowski, F. E., Flower, R. H., Thompson, M. L., and Foster, R. W., 1956, Stratigraphic studies of the San Andres Mountains, New Mexico: State Bur. Mines and Mineral Res. Mem. 1, 132 p.

Krieger, R. A., Hatchett, J. L., and Poole, J. L., 1957, Preliminary survey of the saline-water resources of the United States: U.S. Geol. Survey Water-Supply Paper 1374, 172 p.

Laudon, L. R., and Bowsher, A. L., 1941, Mississippian formations of Sacramento Mountains, New Mexico: Am. Assoc. Petroleum Geologists Bull., v. 25, no. 12, p. 2114-2116.

———1949, Mississippian formations of southwestern New Mexico: Geol. Soc. America Bull., v. 60, no. 1, p. 17-19, fig. 8.

McMorries and Associates, Henningson, Durham, and Richardson, Inc., 1967, Water and Sewer report, city of Alamogordo, 59 p.

Meeks, T. O., 1950, The occurrence of ground water in the Alamogordo-Tularosa area of the Otero Soil Conservation District, New Mexico: Soil Conservation Service, Regional Bull. 111, 42 p., 2 figs.

Meinzer, O. E., and Hare, R. F., 1915, Geology and water resources of Tularosa Basin, New Mexico: U.S. Geol. Survey Water-Supply Paper 343, 317 p.

Mourant, W. A., 1963, Water resources and geology of the Rio Hondo drainage basin, Chaves, Lincoln, and Otero Counties, New Mexico: N. Mex. State Engineer Tech. Rept. 28, 85 p., 4 pl., 13 figs.

Nelson, L. A., 1940, Paleozoic stratigraphy of the Franklin Mountains of west Texas: Am. Assoc. Petroleum Geologists Bull., v. 24, p. 157-172.

New Mexico Geological Society, 1952, Stratigraphy of Paleozoic, Mesozoic rocks in parts of central New Mexico: Guidebook, 3d Field Conf., p. 106-126.

Otte, Carel, Jr., 1959, Late Pennsylvanian and Early Permian stratigraphy of the northern Sacramento Mountains, Otero County, New Mexico: State Bur. Mines and Mineral Res. Bull. 50, 111 p., 14 pl.

Pray, L. C., 1954, Outline of the stratigraphy and structure of the Sacramento Mountain escarpment, in New Mexico Geol. Soc. Guidebook, 5th Field Conf., Oct., 1954, Southeastern New Mexico, p. 92-107.

———1961, Geology of the Sacramento Mountains escarpment, Otero County, New Mexico: State Bur. Mines and Mineral Res. Bull. 35, 144 p.

Roswell Geological Society, 1956, West-East correlation section, San Andres Mtns. to New Mexico-Texas Line, southeastern New Mexico, 1 p.

Ruhe, R. V., 1967, Geomorphic surfaces and surficial deposits in southern New Mexico: State Bur. Mines and Mineral Res., Mem. 18, 65 p., 2 pl.

Sandeen, W. M., 1954, Geology of the Tularosa Basin, southeastern New Mexico, in New Mexico Geol. Soc. Guidebook, 5th Field Conf., Oct. 1954, p. 81-88.

Sayre, A. N., and Livingston, Penn, 1945, Ground-water resources of El Paso area, Texas: U.S. Geol. Survey Water-Supply Paper 919, 190 p.

Schmidt, P. G., and Craddock, Campbell, 1964, The geology of the Jarilla Mountains, Otero County, New Mexico: State Bur. Mines and Mineral Res. Bull. 82, 55 p., 2 pl.

Smith, C. T., and Budding, A. J., 1959, Reconnaissance geologic map of Little Black Peak fifteen-minute quadrangle, east half: State Bur. Mines and Mineral Res. Geol. Map 11, 1 pl.

Steward, A. C., 1967, Establishing vegetative cover with saline water: New Mexico State University Agricultural Experiment Station Bull. 513, 21 p.

Strain, W. S., 1965, Early Pleistocene history of southern part of Mesilla Bolson [abs.], in Guidebook of southwestern New Mexico II - New Mexico Geol. Soc. 16th Field Conf., 1965, Socorro, State Bur. Mines and Mineral Res., p. 243.

———1966, Blancan Mammalian fauna and Pleistocene formations, Hudspeth County, Texas, Austin, Texas: Texas Mem. Mus., Bull 10.

———1968, Cenozoic rock in the Mesilla and Hueco bolsons, in Delaware Basin Exploration: West Texas Geol. Soc. Guidebook, p. 83-84.

———1969, Late Cenozoic strata of the El Paso area, in Border Stratigraphy Symposium: State Bur. Mines and Mineral Res. Circ. 104, p. 122-123.

Titus, F. B., Jr., 1960, Summary of test drilling, Gran Quivira National Monument, New Mexico: U.S. Geol. Survey open-file rept., 12 p.

Weber, R. H., 1964, Geology of the Carrizozo quadrangle, New Mexico, in Guidebook of the Ruidoso Country--New Mexico Geol. Soc. 15th Field Conf., 1964: State Bur. Mines and Mineral Res., p. 100-109.

Weir, J. E., Jr., 1965, Geology and availability of ground water in the northern part of the White Sands Missile Range and vicinity, New Mexico: U.S. Geol. Survey Water-Supply Paper 1801, 78 p., 11 figs.

White, D. E., Hem, J. D., and Waring, G. W., 1963, Chemical composition of subsurface waters: U.S. Geol. Survey Prof. Paper 440-F, p. 67.

Winslow, A. G., and Kister, L. R., 1956, Saline water resources of Texas: U.S. Geol. Survey Water-Supply Paper 1365, 105 p.

Appendix tables

The following five tables represent a relatively complete tabulation of information obtained from the literature, files of the U.S. Geological Survey, the State Engineer Office, White Sands Missile Range, Holloman Air Force Base, the city of Alamogordo and White Sands National Monument, and from other State and Federal agencies.

Wells and springs in these tables are identified by a number based on their location. The first part of the number indicates the township north (N) or south (S) of the New Mexico Baseline, the second part indicates the range east (E) or west (W) of the New Mexico principal meridian, the third part indicates the section within a township, and the fourth segment indicates the location within the section. The three digits in the fourth part of the number indicate, respectively, the quarter section (about 160 acres), the quadrant (about 40 acres) of the quarter section, and the quadrant (about 10 acres) of the 40-acre tract in which the well is located. Figure 34 shows the system of numbering quarter sections and quadrants, which is done in reading order, as well as the numbering of sections in a township. The letter designation following the fourth segment indicates the well was the second, third, or fourth (a, b, c) well located in that particular tract. The well in figure 34 is in the NE¼NE¼NE¼ sec. 24, T. 22 S., R. 4 E. When a well cannot be located to the 10-acre tract, the remaining digit or digits are zeros.

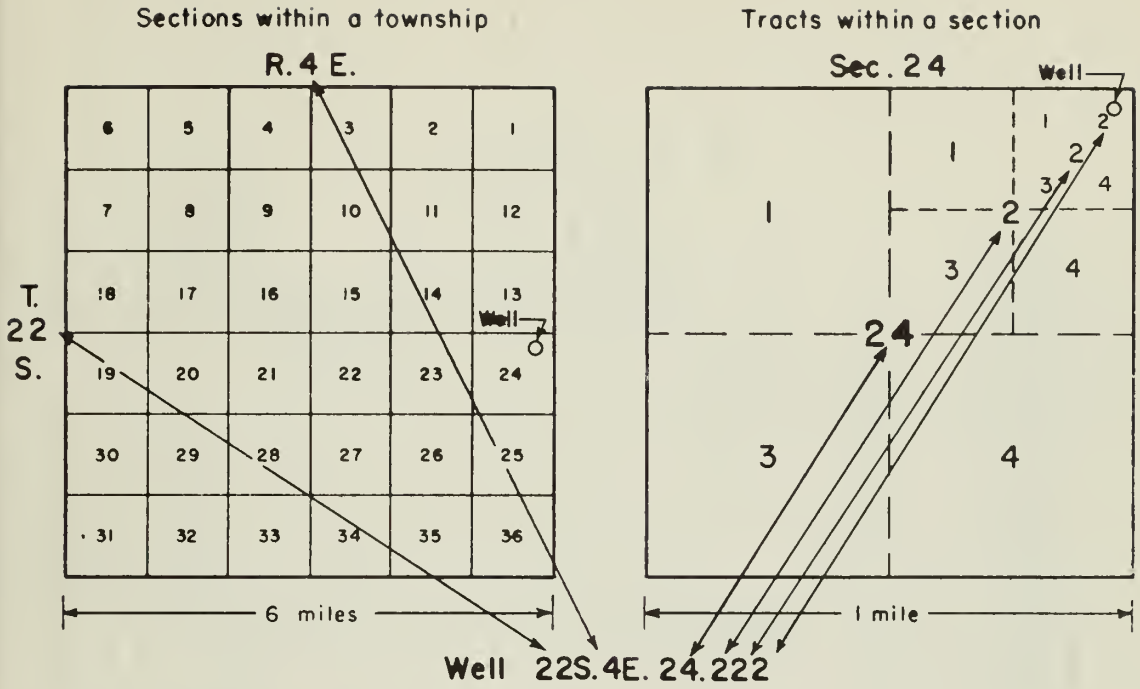

Figure 34.--Diagram showing system of numbering wells and springs.

Table 1.--Records of selected wells in the Tularosa Basin

EXPLANATION:

Locetion no.: See explenetion of well numbering system in text.

Altitude: Veluas expressed in feet are extrepoleted from U.S.G.S. topographic maps. Veluee expreseed in hundredths of e foot are leveled from bench marks.

Geologic eource: Qel, Queternery elluvium; Qb, Queternery baselt; Tu, igneous rocks of Tertiary ege; Kmv, Mesaverde Group; TKc, Cub Mountain Formetion of Bodine (1956): Kd, Dekote Sandstone; Km, Mencoe Shele; Kd, Dockum Group; Py, Yeso Formation; Pe, Abo Sandstone; Peg, Sen Andres Limestone and Glorieta Sendstone undifferentiated; Pb, Bursum Formation; Pm, Madera Limestone; pC, Precambrian granitic rocks. (F), indicate fractured rock.

Weter level: Meeeured with e steel tepe, unless followed by "R", which indicetes weter level is reported; "a" indicates well pumping at time of measurement.

Yield: R, reported. Other velves were meesured.

Method of lift: S, eubmersible pump; T, Turbine pump; W, windmill; J, Jack pump; N, well not equipped with pump.

Use of water: S, stock; D, domestic; PS, public supply; I, irrigetion; NP, non-potable supply; G, grevel plent; R, recreetional leke; RR, reilroed well.

Remarks: C, chemicel enelysie tebuleted in teble 4; T, temperature of well water; SPC, specific conductivity of water in micromhos at 25°C

Locetion no.	Owner or neme	Yeer com-pleted	Altitude (feet)	Depth of well (feet)	Diem-eter of cesing (inchee)	Geologic source	Weter level: Depth below lend surface detum (feet)	Weter level: Dete	Yield (gpm)	Method of lift	Use of weter	Remarks
						DONA ANA COUNTY						
17S. 4E. 2.211	White Sends Missile Renge	1967	4,139.87	1,010	8	Qel	210.95	6-23-69	248	N	N	Obeervetion well NW 30-1; C
19S. 5E.17.333	do.	1963	4,135	1,000	6	Qel	221.30	6-23-69	165	N	N	Obeervetion well MAR-1; C
19S. 5E.19.413	do.	1967	4,223.39	1,016	8	Qel	308.80	6-23-69	235	N	N	Obeervetion well MAR-4; C
19S. 5E.21.111	do.	1963	4,080	750	--	Qal	179	6-27-63	1.6	N	N	Test hole MAR-3, filled in; C
19S. 5E.28.443	do.	1963	4,135	749	--	Qel	237	6- 4-63	20	N	N	Test hole MAR-2, filled in; C
20S. 5E.34.133	do.	1967	4,177.89	1,010	8	Qel	298.73	6-23-69	212	N	N	Obeervetion well SMR-3; C
21S. 4E.11.333	do.	1966	5,437.30	189	--	pC	77	11-30-66	½	N	N	Test hole HTA-2, filled in; C
21S. 4E.22.222	do.	--	5,200	130	8	--	48	1- 4-63	10	W	S	HTA-8; C
21S. 4E.23.233	do.	1966	5,018.23	250	8	pC	78.67	12-10-68	26	N	N	Obeervetion well HTA-1; C
21S. 5E.12.334	do.	--	3,950	--	5	Qel	112	3-18-53	--	--	--	C
21S. 5E.14.434	do.	1967	3,950	666	10	Qel	108.6	12-18-67	20	N	N	SMR-5; C
21S. 5E.15.411	do.	--	3,970	235	12-6	Qel	131	3-29-53	15	--	--	C
21S. 5E.17.244	do.	1960	4,180	600	6	Qel	295.97	1- 6-65	156	S	C	SMR-1; C
21S. 5E.17.424	do.	1960	4,225	860	8-6	Qel	309.00	6-23-69	172	--	--	SMR-2; C
21S. 5E.20.344	do.	1967	4,210	1,016	8	Qel	276.50	6-26-69	152	N	N	Obeervetion well SMR-4; C
21S. 5E.32.222	do.	1967	4,056.63	1,111	8	Qel	209.00	6-25-69	100	N	N	Obeervetion well T-13; C
22S. 4E. 1.431	do.	1966	4,410.31	598	8	Qel	383.45	6-24-69	14	N	N	Obeervetion well T-9; C
22S. 4E. 1.444	do	1953	4,320	1,004	6	Qel	421	10-10-61	--	N	N	T-1; C
22S. 4E.11.244	do.	1966	4,441.67	1,897	8	Qel	562.83	6-24-69	120	N	N	Obeervetion well T-8; C
22S. 4E.13.223	do.	1953	4,262	1,000	6	Qel	368	1- 3-62	--	N	N	T-2; C
22S. 4E.13.311	do.	1960	4,260	900	14	Qal	396	9-21-60	1,000	T	PS	Supply well 13; C

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Data	Yield (gpm)	Method of lift	Use of water	Remarks
					DONA ANA COUNTY - continued							
22S. 4E.13.333	White Sands Missile Range	1950	4,333	600	12	Qal	402	1- 4-63	366	T	PS	Supply well 11; C
22S. 4E.13.411	do.	1954	4,290	810	12	Qal	478	6-19-63	750	T	PS	Supply well 14; C
22S. 4E.13.424	do.	1954	4,261	820	12	Qal	458	6- 9-63	750	T	PS	Supply well 15; C
22S. 4E.13.432	do.	1954	4,270	890	12	Qal	463	6-19-63	660	T	PS	Supply well 16; C
22S. 4E.14.133	do.	1960	4,500	515	6	Qal	207.17	6-26-69	160	N	N	Observation well T-6; C
22S. 4E.14.211	do.	1953	4,442	875	6	Qal	403	10-11-63	--	N	N	Observation well T-3; C
22S. 4E.16.112	do.	--	4,820	--	8	Qal	50	2-25-54	--	W	S	C
22S. 4E.23.214	do.	1952	4,369	570	12	Qal	267.98	3-26-69	--	T	PS	Supply well 12; C
22S. 4E.23.444	do.	1967	4,334.65	2,000	8	Qal	228.60	3-26-68	30	N	N	Observation well T-12; C
22S. 4E.24.212	do.	1948	4,271	505	14	Qal	397	6-19-63	209	T	PS	Supply well 10; C
22S. 4E.24.212a	do.	1963	4,273	825	16	Qal	401	9-10-63	1,000	T	PS	Supply well 10a; C
22S. 4E.24.222	do.	--	4,255	352	6	Qal	348.27	1-30-57	--	--	--	Old "Gate well", now dry
22S. 4E.24.222a	do.	1959	4,252	439	6	Qal	394.35	6-24-69	--	N	N	Observation well "Gate well"; C
22S. 5E. 5.313	do.	1966	4,159.84	1,365	8	Qal	254.86	6-25-69	180	N	N	Observation well T-10; C
22S. 5E. 7.342	do.	1963	4,185	1,000	8	Qal	367.83	6-25-69	250	N	N	Observation well T-7; C
22S. 5E.15.221	do.	1967	3,950	6,015	10	Qal	131.50	6-26-69	10	N	N	Observation well T-14; C
22S. 5E.16.111	do.	1953	4,053.28	1,003	6	Qal	224.93	6-25-69	--	N	N	Observation well T-4; C
22S. 5E.20.111	do.	1953	4,149.81	1,000	6	Qal	272.75	6-25-69	--	N	N	Observation well T-5; C
22S. 5E.29.232	do.	1966	4,087.21	1,808	8	Qal	277.16	6-24-69	179	N	N	Observation well T-11; C
22S. 5E.31.244	do.	--	4,130	293	6	Qal	--	--	--	T	N	Supply well 2
22S. 5E.31.424	do.	--	4,128	348	--	Qal	--	--	35	T	N	Supply well 9; C
22S. 5E.32.311	do.	--	4,110	452	10	Qal	221	4- 1-63	33	T	N	Supply well 4
22S. 5E.32.311a	do.	--	4,115	--	--	Qal	--	--	--	T	N	Supply well 4a; C
22S. 5E.32.313	do.	--	4,112	267	7	Qal	--	--	39.5	T	N	Supply well 5; C
22S. 5E.32.321	do.	--	4,104	338	--	Qal	236	1-31-53	55	T	N	Supply well 6; C
22S. 5E.32.323	do.	--	4,083	304	--	Qal	237	1-31-53	26	T	N	Supply well 7; C
22S. 5E.33.244	do.	1968	3,990	2,044	8	Qal	179.25	6-24-69	--	N	N	Observation well T-15
23S. 5E. 5.321	do.	1969	4,065	900	8	Qal	142	5-30-69	51.5	N	N	Observation well T-18; C
23S. 5E.10.413	do.	1969	3,980	2,017	8	Qal	190	1-28-69	175	N	N	Observation well T-16; C
23S. 5E.27.142	do.	1969	4,020	2,510	8	Qal	240	4-24-69	115	N	N	Observation well T-17; C
23S. 5E.35.300	do.	1953	3,937	1,216	6	Qal	165	4- 4-53	--	N	N	Test well P-1; C

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Locetion no.	Owner or name	Year com- pleted	Altitude (feet)	Depth of well (feat)	Diam- eter of casing (inches)	Geologic source	Water level: Depth below lend surface detum (feet)	Water level: Dete	Yield (gpm)	Method of lift	Use of water	Remarks
					DONA ANA COUNTY - concluded							
23S. 5E.36.300	Fort Bliss Military Reservetion	--	3,946	181	5	Qal	152.8	4-23-36	--	N	N	Dry well F-2; C
24S. 5E.20.340	do.	1953	4,135.7	1,205	--	Qal	381.0	6-27-53	--	N	N	Test hole F-3; C
24S. 5E.28.240	do.	1953	4,015.2	580	--	Qal	256.7	4- 4-53	--	N	N	Test hole F-5; C
25S. 4E.11.130	do.	1923	4,077.4	798	8	Qal	330.5	5-13-54	--	T	D	K-15; C
25S. 4E.17.444	do.	1954	4,167.7	902	364	Qal	349.3	4-16-54	--	N	N	Test hole K-14; C
25S. 4E.18.244	do.	1953	4,200.1	977	3	Qel	381.4	5-31-54	--	N	N	Test hole K-13; C
25S. 4E.35.120	do.	1953	4,102.3	1,085	3	Qal	356.7	1- 7-54	--	N	N	Test hole K-16; C
25S. 5E.27.330	do.	1953	4,086.4	950	--	Qal	361.3	4-27-53	--	N	N	Test hole L-4; C
25S. 5E.31.210	do.	1953	4,090.4	1,686	--	Qel	352.4	5-31-53	--	N	N	Test hole L-2; C
25S. 5E.31.340	do.	--	4,074.7	462	6	Qel	335.9	3- 8-54	--	N	N	Test hola L-3; C
25S. 5E.35.300	do.	1953	4,086.4	950	--	Qel	361.3	4-27-53	--	N	N	Test hole L-4; C
25S. 5E.36.111	do.	1953	4,068.0	690	--	Qel	334.4	4-11-53	--	N	N	Tast hole L-5; C
26S. 5E.21.400	do.	1933	4,032.2	340	6	Qel	319.7	3- 9-54	--	W	S	L-11; C
26S. 5E.24.320	do.	--	4,043.9	400	6	Qel	327.5	6-16-54	--	W	S	L-13; C
26S. 5E.33.400	do.	1953	4,045.8	1,209	3	Qal	323.6	1-15-54	--	N	N	Test hole L-12; C
					LINCOLN COUNTY							
6S. 9E. 1.221	Gary Lovelece	--	5,465	--	8	Tsd	--	--	--	S	S	--
6S. 9E. 1.232	do.	--	5,440	175	12	Tsd	135R (135')	5- 8-69 (10-29-51)	150	T	I	C
6S. 9E. 2.134	do.	--	5,425	--	6	Tsd	60.02	5- 8-69	--	N	N	--
6S. 9E. 2.423	do.	--	5,425	90	6	Tsd	81.38	5- 8-69	--	N	N	--
6S. 9E. 7.232	do.	--	5,640	--	--	Py	450R	--	--	W	--	C
6S. 9E.19.441	do.	--	5,480	--	6	Py	550R	--	--	W	--	C
6S. 9E.25.243	do.	--	5,500	900R	8	Py	400R	--	--	J	S	--
6S. 9E.33.143	do.	--	5,815	--	--	Py	1,100R	--	--	J	--	C
6S.10E. 6.113	do.	--	5,460	214	12	--	138.50	5- 8-69	--	N	N	--
6S.10E. 6.131	do.	--	5,450	150R	--	--	--	--	5	W	S	C
6S.10E.30.131	Bryce Dugger	1963	5,440	1,500	10	--	--	--	--	N	N	Abendoned oil test; weter send (Clorieta & Yeso(?)). Reported 800-1,100 ft.
7S.10E.28.234	J. McBrayer	--	5,255	29	40	Qel	25.96	5- 5-69	--	W,J	D	--
7S.10E.28.414a	New Mexico Copper Crop.	--	5,250	--	12	Qal	25.59	5- 9-69	--	S	N	--
7S.10E.29.310	J. F. Herkey	1951	5,210	60	12	Qal,Kmv	40.47	1- 9-69	400	T	I	
7S.11E.27.232	Pras Pino	1950	5,740	110	6	Qel	87.85	5- 7-69	--	W	S	--
7S.11E.33.140	do.	1957	5,660	--	6	Qal	46.17	5- 7-69	--	W	S	--

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water		Remarks
						LINCOLN COUNTY - continued							
8S. 6E.22.424	T. Spencer	--	5,550	17	48 x 24	Pm	14.4	3-31-55	--	W	S	C	
8S. 7E. 8.124	P. Withers	--	5,200	155	6	Py	133.5	3-30-55	3	W	S	C	
8S. 9E. 9.243	M. Crockett	--	5,055	--	4	Py	--	--	3	W	D	C	
8S. 9E.25.243	--	--	5,180	--	--	--	--	--	5	W	S	C	
8S. 9E.25.310	--	--	5,140	--	10	--	126.78	5- 6-69	--	S	U		--
8S. 9E.29.414	G. MacDonald	1949	4,960	50	6	Qal	26R	--	4	W	N	C	
8S. 9E.34.333	Cattle Guard well	--	5,110	62.3	6	Qal	38.03	1- 9-69	2	W	S	C	
8S.10E. 1.324	Carrizozo Country Club	--	5,540	217	8	Kmv	49.64	5- 8-69	--	N	N		--
8S.10E. 1.423	Mr. Patty	--	5,555	114.5	6	Kmv	67.23	1- 9-69	--	N	N		
8S.10E. 5.434	Dr. A. N. Spencer	--	5,295	--	8	--	28.54	5- 6-69	--	S	S		--
8S.10E. 8.212	do.	1957	5,285	50	12	Qal,Kmv	--	--	250	T	D		--
8S.10E. 9.122a	Joe West	1962	5,360	80	8	Qal,Kmv	38.36	5- 6-69	7	S	D		--
8S.10E.13.133a	Byrce Duggar	1957	5,650	168	18	Kmv	111.05	1-26-60	--	T	N		
8S.10E.13.133b	do.	1957	5,650	180	--	Kmv	98.48	4- 3-57	--	T	D,S		--
8S.10E.13.133d	do.	--	5,640	--	12	Kmv	109.18	5- 7-69	--	T	N		--
8S.10E.14.223	City of Carrizozo	--	5,590	--	--	Kmv	--	--	150R	T	PS		--
8S.10E.14.241	do.	--	5,600	--	--	Kmv	83.00	5- 9-69	150R	T	PS		--
8S.10E.25.311	do.	1957	5,825	350	6	Kmv	113.03	1- 5-59	25R	W	S		
8S.11E. 2.141	Pras Pino	1959	5,785	110	8	Qal,Kmv	--	--	--	W	S,D		--
8S.11E. 2.424	Bud Cranshaw	1968	5,845	181	12	Qal,Kmv	95.52	5- 7-69	--	--	--	Irrigation planned.	
8S.11E. 3.324	--	--	5,735	--	6	Qal,Kmv	43.82a	5- 7-69	5	W	S		--
8S.11E. 6.431	J. B. Sidewell	1956	5,590	99	8	Qal,Kmv	46.95	10-14-69	200R	T	I		
8S.11E. 6.431a	do.	1956	5,590	100	12	Qal,Kmv	46.95	1- 9-69	400R	S	D		
8S.11E. 6.441	do.	1968	5,595	110	10	Qal,Kmv	53.44	5- 6-69	240R	T	I		--
8S.11E. 6.444	Johnson Stearns	--	5,610	--	12	Qal,Kmv	67.80	5- 6-69	--	N	N		--
8S.13E.19.330	F. W. Leach	1957	6,170	200	12	Qal,Kmv	22.69	1- 9-69	--	N	N		
8S.13E.30.441	Fulton Duggar	1954	6,275	218	8	Qal,Kmv	31.85	1- 9-69	--	T	I		
9S. 6E. 2.442	J. Dillard	--	5,055	24	48 x 48	Pm	13.8	3-31-55	--	W	--	C	
9S. 6E.24.221	T. Spencer	--	4,795	45	6	Pm	22.5	5-10-55	--	W	--	C	
9S. 7E. 9.411	do.	--	4,705	205	4	Qal,Pag	198.7	5- 9-55	--	W	--	C	
9S. 7E.25.134	Holloman Air Force Base	1949	4,518	200	10	Qal	90R	--	125	T	--	C, ORC fire well	
9S. 8E. 5.421	G. MacDonald	--	4,635	335	6	Qal	300R	--	12R	W,J	I	C	
9S. 8E.22.311	P. Withers	1949	4,675	265	6	Qal,Py	165R	--	12R	W,J	D	C	

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water	Remarks
						LINCOLN COUNTY - concluded						
9S. 8E.31.543	P. Withers	--	4,515	--	6	Qal	116.3	5-31-55	4	W	--	C
9S. 8E.35.141	Rube MacDonald	--	4,885	60R	6	Qal	45.5	6- 1-55	--	W	--	C
9S. 8E.35.142	do.	--	4,900	90R	--	Qal	46R	--	350	T	I	C
9S. 8E.36.244	L. Drake	1955	5,025	135R	6	Qal	48R	--	50R	T	PS	C
9S. 9E. 7.512	B. Nickels	--	4,950	259R	--	Kd	79.2	8-25-56	2R	W	--	C
9S. 9E.29.424	do.	1955	5,525	96R	6	Knv,Qal	62.7	9-20-55	4	W	--	C
9S. 9E.31.233	do.	1954	5,085	95R	6	Qal,Knv	45.8	8-23-55	2	W	--	C
10S. 7E.34.151	--	--	4,530	30	36	Qal,Qb	23.1	5-26-55	--	W	--	C
10S. 8E.18.151	A. Helm	--	4,455	--	72	Qal	65.1	5-26-55	--	W	--	C
10S. 9E. 5.125	B. Nichols	1954	5,180	90	6	Qal,Knv	51.2	9-20-55	4	W	--	C
10S. 9E. 8.121	I-X Ranch	--	5,198	--	6	Qal,Knv	--	--	--	W	--	C
10S. 9E.13.212	Barnevell well	1952	6,010	45	4	Tu	21.22	8-21-56	12	W	S	C
10S. 9E.24.412	--	1964	5,805	170	6	TKc,Knv	22.69	8-21-56	70	W	S	C
10S. 9E.34.211	Halfway well	1947	5,650	235	4	Tu	182.16	8-15-56	2	W	S	C
10S. 9E.35.215	Boyd well	1945	5,600	52	10	Knv	52.35	1-13-65	2	N	N	Also published as 10S.9E.35.211
10S.10E. 4.441	Bataan Lodge well	--	6,505	221	7	--	105.97	1- 4-57	5	W	S	C
10S.10E. 5.222	I-X Ranch	--	6,150	114	8	--	110	1- 4-57	5	W	S	C
10S.10E.29.414	Brownfield well	19?6	5,835	56	8	Qal	39.29	1-29-68	8 to 10	W	S	C
10S.10E.32.334	T-1	1956	5,622	301	8	Knv	8.45	5- 7-58	--	N	N	C
10S.10E.32.420b	Trammel well-2	1955	5,805	76	6	TKc	19.14	1- 9-69	50R	N	N	Also published as 10S.10E.32.421a
10S.10E.35.151	Trammel well-3	1955	5,830	45	6	TKc	50.90	7-30-57	45	W	S	C
						OTERO COUNTY						
11S. 9E.22.441	Sand well	1952	4,650	158	6	--	134.10	7-26-56	3-5	W	S	C
11S. 9E.35.122	Gatehouse well-1	1951	4,450	60	6	Qal,Km	16.35	7-25-56	1	W	D,S	C
11S.9½E.12.422	Pete Crawford	--	5,380	50	6	Qal	36.87	1- 9-69	--	W	N	
11S.9½E.13.234	T-4	1951	5,296	300	--	Qal	13.40	1- 9-69	25	N	N	T-4
11S.9½E.13.244	Bosque well	1912(?)	5,535	80	--	Qal	11.27	1- 9-69	590	T	D,S,I	
11S.9½E.22.244	Rattlesnake well	1918	5,080	24	8	Qal	9.46 3.25	8-22-56 1-13-60	150	T	J	--
11S.9½E.25.124	T-8	1957	5,145	500	8	Qal,Knv	25.0	10-16-57	--	N	N	T-8
11S.9½E.28.214	Fishpond well-1	1943	4,950	107	10,8,6	Qal,Knv	15.95	7-30-56	120	T	I	--
11S.10E. 5.112	Johnson well-1	1943	5,625	36	8	Qal	30.81	8-23-56	65	W	O	C
11S.10E. 5.121	Johnson well-2	1949	5,625	101	10	Qal,TKc	--	--	--	J	D	C

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water	Remarks
						OTERO COUNTY - continued						
11S.10E. 5.330	T-5	1957	5,557	500	8	Qal	49.65	1- 9-69	--	N	N	T-5; C; also published as 11S.10E.5.352
11S.10E. 6.555	T-2	1957	5,391	500	8	Qal,Ksv	25.22	1- 9-69	--	N	N	T-2; C
11S.10E. 6.435	T-3	1957	5,455	500	8	Qal,Ksv	54.21	1- 9-69	--	N	N	T-5; C
11S.10E. 7.254	Foley test hole	1956	5,450	116	10	Qal	25.80	1- 9-69	--	N	N	C
11S.10E. 7.234a	T-7	1957	5,050	500	8	Qal,	28.44	1- 9-69	200	N	N	T-7; C
11S.10E. 7.411	School House Corral well	1955	5,415	44	4	Qal	22.51	8- 9-56	8-10	W	S	C
11S.10E. 8.311	T-4	1957	5,486	500	8	Qal	26.06	1- 9-69	10	N	N	T-4; C
11S.10E. 5.351	Martines well	1948	5,515	158	4	Qal,	49.99	8-10-56	2-5	W	S	C
11S.10E.17.422	Mescalero Apache Indian Reservation "Indian well"	1952	5,475	582+	--	Qal,	159.99	8-10-56	2-3	W	S	C
11S.10S.19.132	Golondrina well	1948	5,435	102	8	Qal,	77.86	8- 6-56	4-5	W	S	C
15S. 7E.26.342	--	--	4,075	--	--	Qal	18	7-24-57	--	W	S	C
13S. 8E.34.411	--	--	4,157	35	--	--	51	7-24-57	--	--	--	C
13S. 9E.19.214	State of New Mexico	--	4,250	1,000R	16	Qal	20	3-25-69	--	N	N	--
13S. 9E.20.222	do.	--	4,520	17	6	Qal	--	3-25-69	½	Flows	S	--
15S. 9E.20.234	do.	--	4,500	--	5	Qal	Dry	3-25-69	--	N	N	
13S. 9E.20.234a	do.	--	4,500	117	12	Qal	Flows	3-25-69	½	Flows	S	SPC = 2,560; T = 18°C
13S. 9E.20.244	do.	--	--	--	--	Qal	--	--	--	N	N	C
13S. 9E.25.124	Harvey Yates	--	4,545	--	14	Qal	191	2-12-69	--	T	I	--
13S. 9E.25.415	do.	--	4,530	--	16	Qal	175	2-12-69	--	T	I	--
15S. 9E.51.222	State of New Mexico	--	4,225	700R	12	Qal	36	3-25-69	--	W	S	SPC = 2,450
15S. 9E.34.450	do.	--	4,575	340R	12	Qal	34.08	1- 9-69	800R	W	S	C
13S. 9E.35.144	do.	--	4,425	243	12	Qal	67	3-25-69	1,200R	N	N	--
15S. 9E.36.215	Harvey Yates	1957	4,500	530E	12	Qal	117	2-12-69	250	T	I,D	C
15S. 9S.56.253	do.	1955	4,500	260R	12	Qal	117R	2-21-56	500	T	I,D	C
13S. 9E.56.542	do.	--	4,490	--	12	Qal	--	--	--	T	N	--
15S. 9S.56.424	do.	--	4,555	--	12	Qal	166	2-12-69	--	T	I	--
13S.10E. 6.534	do.	--	4,660	--	6	Qal	270R	3-26-69	--	S	U	
14S. 7E. 4.234	--	--	4,025	20	96	Qal	17	7-24-57	--	W	S	C
14S. 9S. 4.100	State of New Mexico	1955	--	550E	12	Qal	29.34	2- 8-56	400R	N	N	
14S. 9S. 4.222	do.	--	4,505	250E	12	Qal	31	3-25-49	150R	N	N	--
14S. 9E.10.424	N. White	1966	4,585	315R	12	Qal	18	2- 7-69	--	S	D	--
14S. 9S.10.444	Joe Kalch	--	4,385	--	12	Qal	41	2- 7-69	--	T	N	--
14S. 9E.11.422	G. E. Yetley	1969	4,440	435R	14	Qal	74	2- 7-69	--	T	I	SPC = 2,770

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water	Remarks
						OTERO COUNTY - continued						
14S. 9E.11.442	G. E. Yatley	1969	4,435	--	14	Qal	--	2- 7-69	--	N	N	Drilling in progress
14S. 9E.12.220	Ernest Billups	--	4,500	330R	12	Qal	132.12	1- 9-69	--	T	1,D	
14S. 9E.12.532	A. Richardson	--	4,450	300R	12	Qal	95	2-11-69	--	T	1	--
14S. 9E.13.200	Thomas Potter	1949	--	235	8	Qal	151.30	1-30-58	--	N	N	
14S. 9E.14.112	Howard Wood	1966	4,425	290R	12	Qal	68	2-11-69	550R	T	1	SPC = 2,500
14S. 9E.13.211	S. P. Gilliland	1966	4,360	207R	12	Qal	122R	3-21-60	280R	T	1	" --
14S. 9E.13.343	Ted Hicks	--	4,350	90R	6	Qal	74.09	2-11-69	--	S	D	SPC = 2,610
14S. 9E.13.344	do.	1949	4,360	145R	16	Qal	66.30 93.20	7-10-60 2-11-69	350	T	1	SPC = 3,080
14S. 9E.15.442	Heine	1963	4,385	243R	12	Qal	102	2- 6-69	--	T	1	--
14S. 9E.14.422	Border Electric Co.	1920	4,335	700R	12	Qal	9	2-11-69	400R	N	N	Flow 20 gpm when drilled.
14S. 9E.16.422a	do.	--	4,335	250R	12	Qal	70+	2-11-69	--	T	1	--
14S. 9E.21.442	Mantie Gardenhire	1962	4,330	362	12	Qal	36	2- 6-69	450R	N	N	--
14S. 9E.22.122	Lester Wilcox	1953	4,355	--	12	Qal	62.80 125.6a	6-16-35 2-25-69	600	T	1	--
14S. 9E.22.222	A. K. Trammel	1933	4,380	262R	12	Qal	79.65	6-16-55	--	T	1	
14S. 9E.22.232	Mattie Danley	--	4,370	--	12	Qal	--	--	--	T	1	--
14S. 9E.23.112	Bill Trammell	--	4,393	--	12	Qal	119.99	2- 6-69	--	N	N	
14S. 9E.25.322	W. H. Cook	--	4,405	250R	12	Qal	185a	3-26-69	100	T	1	SPC = 2,580
14S. 9E.25.412	do.	--	4,420	--	12	Qal	148.3	3-26-69	--	T	N	--
14S. 9E.24.200	E. Johnson	1950	--	303	16	Qal	90	1950	600R	--	1	C
14S. 9E.24.343	W. H. Cook	1947	--	232	10	Qal	154.29	4- 8-52	350	T	1	C
14S. 9E.24.412	Henry Rue	1955	4,460	360	16	Qal	175 208	6-17-53 2- 6-69	600R	T	1	--
14S. 9E.23.140	C. W. Trammel	--	--	200	12	Qal	190.45	1- 9-69	--	T	1	
14S. 9E.23.332	A. R. Meeder	--	4,430	--	12	Qal	142	2- 6-69	--	T	1	--
14S. 9E.25.411	J. L. Woods	--	4,443	150	16	Qal	Dry	2- 6-69	--	N	--	--
14S. 9E.25.412	John Lackey	--	4,450	--	12	Qal	--	--	110	T	1	--
14S. 9E.25.422	Lester Wilcox	1964	4,465	250R	--	Qal	--	--	600	T	1	--
14S. 9E.24.142	Bill Ramsey	1953	4,395	200R	16	Qal	98.55 154.40	2-21-34 2- 5-69	--	T	1	--
14S. 9E.24.222	Kenneth Owens	1962	4,420	600R	12	Qal	132	2- 6-69	--	T	N	--
14S. 9E.26.224	do.	1968	4,425	--	4	Qal	136	2- 6-69	--	N	N	--
14S. 9E.24.241	Harry Owens	--	4,415	200R	12	Qal	144	2- 6-69	--	N	N	--
14S. 9E.24.242	do.	--	4,425	300R	--	Qal	136	2- 6-69	--	S	D	--

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water		Remarks
						OTERO COUNTY - continued							
14S. 9E.26.344a	Harry Owens	--	4,425	260R	12	Qal	155	2- 4-60	160R	T	I		--
14S. 9E.26.345b	do.	1967	4,425	309R	12	Qal	158 155	3-16-67 2- 4-60	75R	M	H		--
14S. 9E.16.322	Ray Clark	--	4,390	--	14	Qal	129	2- 4-60	--	T,S	H		--
14S. 9E.26.342	Wilfred Martin	--	4,390	200R	12	Qal	93.67 125.77	2-21-54 2- 4-60	--	T	I		--
14S. 9E.16.344	do.	1964	4,390	200R	12	Qal	125	2- 4-60	500R	T,S	I,D		--
14S. 9E.16.412	Stanley Coy	1951	4,405	227	12	Qal	142.83	1- 9-60	600R	T	I		
14S. 9E.26.412a	Robert A. Morehead	--	4,405	200	8	Qal	91R	3- 3-51	300R	T	I	S	
14S. 9E.36.422	John Mayo	--	4,425	--	--	Qal	97.20 154.00	8-21-54 2- 4-60	--	T	S		--
14S. 9E.16.441	J. E. Simpson	1961	4,410	197R	--	Qal	144	2- 4-60	250R	T	I		--
14S. 9E.16.442	do.	1949	4,415	300R	8	Qal	153	2- 4-60	--	S	P		--
14S. 9E.16.442a	do.	1962	4,415	1,300R	12	Qal	131	2- 4-60	--	H	H	C	
14S. 9E.16.442b	do.	1957	4,415	150R	12	Qal	152R	11- 8-60	600R	T	S		--
14S. 9E.16.444	do.	1965	4,415	250R	--	Qal	144	2- 4-60	420R	T	I		--
14S. 9E.27.742	Velon Booth	1956	4,370	250R	12	Qal	106	1-20-60	350R	T	I		RPC = 8,490
14S. 9E.27.411	do.	1956	4,350	150R	6	Qal	76.55 92.95	3-16-57 1-22-60	350R	T	I		--
14S. 9E.27.421	Harry Owens	--	4,365	--	--	Qal	104.02	1-22-60	--	T	I		
14S. 9E.17.442	do.	1963	4,360	234R	15	Qal	18R	1- 4-60	190R	T	I		--
14S. 9E.18.111	Monte Cordesshire	1900	4,300	175R	15	Qal	66.75	1- 9-60	--	T	S,D		
14S. 9E.33.213	do.	--	4,180	110R	11	Qal	63	1- 6-60	--	M	S		--
14S. 9E.34.121	Dwight Beckout	--	4,325	--	12	Qal	--	--	--	T	I		--
14S. 9E.34.141	Warren Bloys	--	4,340	--	--	Qal	91	1-21-60	--	T	I		--
14S. 9E.34.142	do.	--	4,350	--	--	Qal	62.45 86.70	6-17-55 1-22-60	--	T	I		--
14S. 9E.34.421	Leonard May	1955	4,345	542	11	Qal	75.87 91.60	7-11-56 1-11-60	515	T	I		RPC = 5,980
14S. 9E.34.424	do.	1968	4,345	320R	10	Qal	91	1-11-60	--	H	H		--
14S. 9E.35.323	--	--	4,375	--	6	Qal	100.00	1-11-60	--	M,S	H		--
14S. 9E.35.342	John Mayes	1955	--	300R	12	Qal	88.42	11-30-56	275	T	M		--
14S. 9E.35.344	J. Grey	1955	--	410	18	Qal	73.93	3- 2-55	900	T	I	C	
14S. 9E.35.421	Lewis Howard	1955	4,395	495R	11	Qal	61.60 93.55	3- 7-55 1-31-60	150R	T	I	C	
14S. 9E.35.442	do.	--	4,385	360R	11	Qal	95.10 121.13	3- 2-55 1-11-60	--	T	I		--

Table 1.--Records of selecred wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water		Remarks
						OTERO COUNTY - continued							
14S. 9E.36.112	James Havens	1955	4,425	480R	--	Qal	144.68	1-22-69	500R	T	I		
14S. 9E.36.122	do.	1955	4,430	300R	16	Qal	117.70 149.15	5-22-55 1-22-69	--	T	I		--
14S. 9E.36.212	Floyd Taylor	1955	4,435	--	18	Qal	119.82 148.68	5- 2-55 2- 3-69	400	T	N	C	
14S. 9E.36.421	C. V. Clayton Estate	--	4,425	--	--	Qal	--	--	--	T	I		--
14S. 9E.36.442	do.	1969	4,415	240	12	Qal	119	3-27-69	--	T	I		--
14S.10E.17.314	Sam Smith	--	4,575	315R	12	Qal	184.66 203.50	6- 8-52 2-12-69	425R	T	I		--
14S.10E.18.424	do.	--	4,550	344R	14	Qal	186.86	1- 9-69	300R	T	I		
14S.10E.18.444	do.	1950	4,540	327R	14	Qal	183.22	2-12-69	1,100R	T	I	C	
14S.10E.19.130	J. C. Johnson	--	4,485	--	12	Qal	131.43	1- 9-69	300	T	I		
14S.10E.19.144	Nettie Danley	1951	4,500	300R	16	Qal	153	2-12-69	--	T	I		--
14S.10E.19.230	Sam Smith	1947	4,525	1,440R	10	Qal	151.48 147.91	6- 8-52 2-12-69	500R	T	I	C	
14S.10E.19.244	Charles Vigio	1952	4,550	375R	--	Qal	197	2-12-69	660	T	I		--
14S.10E.20.144	Barney Prather	1952	4,600	335	12	Qal	235	2-12-69	700R	T	I		--
14S.10E.20.221	Julian Martinez	1955	4,640	503R	12	Qal	253.90	2-12-69	140R	N	U		
14S.10E.20.223	do.	1955	4,640	504R	12	Qal	265R	2-12-69	450R	T	I		--
14S.10E.29.312	H. B. Shaw	--	4,530	300R	12	Qal	178.84	1- 9-69	450R	T	I		
14S.10E.29.323	Miniole Hunt	--	4,530	--	8	Qal	179	3-26-69	--	N	N		--
14S.10E.29.411	do.	1954	4,550	350R	12	Qal	196	3-26-69	600R	T	I		--
14S.10E.30.123	C. V. Clayton Estate	1953	--	--	--	Qal	131.89	6-10-69	--	T	I		
14S.10E.30.342	Leon Howell	--	4,480	270R	--	Qal	133	3-26-69	350R	T	I		--
14S.10E.30.422	A. D. Walker	--	4,515	--	--	Qal	140.01 164.74	6- 8-52 3-26-69	--	T	I		--
14S.10E.31.122	--	--	--	--	--	Qal	--	--	--	T	I		--
14S.10E.31.134	Orville Bookout	1966	4,440	297R	--	Qal	--	--	500	T	I	SPC = 2,550	
14S.10E.31.142	do.	--	--	200R	--	Qal	85.41	2- 6-54	--	T	I		--
14S.10E.31.144	Luther Watson	--	4,460	230R	--	Qal	103.62	1- 9-69	200	T	I	C	
14S.10E.31.444	Carl Hansen	1954	4,460	305R	--	Qal	93R	9- 8-53	774R	T	I		--
14S.10E.32.111	Mrs. Toncrey	1954	4,500	243R	12	Qal	132.40 154.00	12-13-55 3-26-69	350R	T	I		--
14S.10E.32.121	do.	1950	4,510	279R	14	Qal	138.89 164.36	12-13-55 3-26-69	--	T	I		--
15S. 9E. 1.122	T. C. Ramsey	--	4,395	--	--	Qal	92.54	1- 9-69	--	T	N		

Table 1. Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water		Remarks
							[illegible] - continued						
15S. 6E. 1.142	C. V. Clayton Estate	--	4,383	--	14	Qal	88.65 95.08	5- 2-55 1-21-69	--	T	H		--
15S. 6E. 1.222	do.	--	4,410	400R	12	Qal	107	1-21-69	--	T	H		--
15S. 6E. 1.422	Willis Danley	1933	4,390	224R	18	Qal	143.1a	1-21-69	360	T	I	SPC = 2,230	
15S. 6E. 1.442	do.	1968	4,390	193R	12	Qal	73	1-21-69	--	N	H		--
15S. 6E. 2.422	Albert Sandoval	--	4,350	270R	--	Qal	92	1-21-69	--	T	I		--
15S. 6E.12.432	Leon King	--	4,370	--	12	Qal	52	1-21-69	--	T	I		--
15S. 6E.13.442	do.	--	4,360	--	--	Qal	48	1-21-69	--	T	I		--
15S. 9E.13.224	W. B. McWilliams	--	4,350	400R	14	Qal	66	1-21-69	--	T	I		--
15S. 6E.13.244	do.	--	4,350	--	--	Qal	--	--	--	T	I		--
15S. 6E.24.242	H. D. Jones	1951	4,350	214	12	Qal	133.31	1-21-69	--	S	H	C	
15S. 6E.24.242a	do.	1951	4,350	150	14	Qal	112.33	2- 8-56	600	T	H		
15S.10E. 3.321	George Acuff	--	--	--	--	Qal	--	--	--	T	S,D		--
15S.10E. 3.414	S. B. Hooper	--	4,500	250R	8	Qal	164	1-15-69	--	--	--	SPC = 3,300	
15S.10E. 4.312	S. B. Rhodes	--	4,410	235R	12	Qal	83.72	1- 9-69	--	T	I		
15S.10E. 4.312a	do.	1959	4,410	175R	4	Qal	88	1-21-69	--	J	S		--
15S.10E. 7.312	Leon King	1951	4,385	--	--	Qal	27.62	4- 9-52	--	T	I		--
15S.10E. 7.400	Harvey Pruhsoe	1949	--	223	14	Qal	65	1950	640R	T	I	C	
15S.10E. 7.412	Jim Lockley	--	--	--	--	Qal	88.24	1- 8-59	--	T	I		
15S.10E. 7.423	--	--	4,418	50	12	Qal	Dry	2- 1-69	--	N	--		--
15S.10E. 7.431	--	--	4,490	--	--	Qal	--	--	--	T	I		--
15S.10E. 8.222	Floyd Bott	--	--	200R	--	Qal	--	1-16-69	--	--	--	Drilling in progress	
15S.10E. 8.242	do.	1964	4,500	260R	12	Qal	162	1-17-69	450R	T	I,D		--
15S.10E. 8.432	Ada Wooter	--	--	348R	10	Qal	133.73	5-11-61	450R	T	I		--
15S.10E. 9.211	Carl S. Martin	1968	4,330	300R	8	Qal	200R	1-16-69	--	S	S,D,I	SPC = 3,500	
15S.10E.14.422	Marcus Quick	1968	4,873	420R	8	Qal	373	12-11-68	--	S	D		--
15S.10E.21.344	Clarence Griffin	1966	4,490	239R	--	Qal	193	1-16-69	--	S	D		--
15S.10E.21.444	Kenneth Kinder	1967	4,350	272R	4,	Qal	201	1-16-69	--	S	D	SPC = 2,720	
15S.10E.22.342	S. M. Batte	1959	4,590	340R	4	Qal	269	12-11-68	25R	S	D		--
15S.10E.22.413	F. C. Starwidge	1968	4,600	275R	--	Qal	254R	1-15-69	30R	D	D		--
15S.10E.22.430	J. B. Jackson	1954	4,410	350R	12	Qal	279.69	12-11-68	--	S	D		
15S.10E.24.300	--	1950	--	330	8	Qal	315	1950	--	--	D	C	
15S.10E.29.120	--	--	4,400	407R	14	Qal	143.39	7- 9-69	820	T	I	C	

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water	Remarks
						OTERO COUNTY - continued						
15S.10E.29.142	J. W. Baird	--	4,410	335R	14	Qal	149	2- 5-69	730R	T	I	--
15S.10E.29.223	do.	--	4,440	--	12	Qal	172	2- 5-69	530R	T	I	--
15S.10E.30.242	Loco Hinkel	1939	--	150R	8	Qal	129	1-17-69	--	S	D	SPC = 2,160
15S.10E.30.242e	do.	--	--	265R	--	Qal	128	1-17-69	--	T	I	--
15S.10E.30.242b	do.	1949(?)	--	350R	--	Qal	--	--	--	T	I	--
15S.10E.30.344	Ossie Beasley	--	4,350	--	6	Qal	105.73	1- 8-62	--	--	--	
15S.10E.31.423	--	--	4,373	--	4	Qal	99	1-17-69	--	N	N	--
15S.10E.31.434	--	--	4,350	--	3	Qal	93	1-17-69	--	S	N	--
15S.10E.32.131	M. H. Hunter	1968	--	100R	8	Qal	--	--	--	S	D	SPC = 1,600
15S.10E.33.214	Robert Major	1956	4,500	426R	6	Qal	209	1-14-69	600R	S	D	SPC = 2,000
15S.10E.33.221	Clarence Griffin	--	4,310	425R	--	Qal	--	1-14-69	110R	T	I	SPC = 2,110
15S.10E.33.441	George Abbot	1963	4,500	350R	8	Qal	206	1-15-69	--	T	G	SPC = 1,710
15S.10E.34.340	C. V. Dugan	1962	4,350	--	--	Qal	250	1-14-69	3R	S	N	SPC = 2,440
15S.10E.36.111	City of Alamogordo	--	4,745	412	12	Qal	397 Dry	4- -56 12-11-68	--	N	--	Well No. 1
15S.10E.36.111a	do.	--	4,740	--	14	Qal	421R	8- 7-68	375R	123T	PS	Well No. 2
16S. 8E.17.132	Holloman Air Force Base	1956	4,083	262	12	Qal	22	4- 7-34	60	N	C	C
16S. 8E.29.121	do.	1956	4,052	605R	4	Qal	30R	8-31-56	22	N	C	C
16S. 8E.29.311	do.	--	4,050	210	4	Qal	29	6-30-56	34	N	C	C
16S. 9E. 1.413	Bel-Ter, Inc.	1961	4,500	260R	4	Qal	193	1-15-69	10R	S	D	--
16S. 9E. 1.432	New Mexico Drilling	1967	4,500	245R	5	Qal	190	2- 5-69	--	S	N	--
16S. 9E. 1.443	Jon Bichel	1910	4,495	235R	4	Qal	20R	1-14-69	--	N	N	--
16S. 9E. 3.400	--	1950	--	--	12	Qal	113.3	1950	--	--	I	C
16S. 9E. 3.422	Frank A. Davis	1950	4,404	200	12	Qal	128.41	1- 9-69	300	T	I	C
16S. 9E. 4.441	Holloman Air Force Base	1956	4,383	412	8	Qal	91	7- 5-56	73	N	N	Test hole T-2; C
16S. 9E. 6.212	Edgington well	1947	4,235	21R	4	Qal	31.67	1- 8-62	--	--	--	C
16S. 9E. 8.222	Charlie Nichols	--	4,265	80	12	Qal	64.27	1-13-64	--	N	N	
16S. 9E.13.320	E. A. Steinhoff	--	4,372	210	12	--	106.75	1- 9-69	--	T	2	C
16S. 9E.13.331	L. W. Cody	--	4,343	15SR	6	Qal	760	2-12-69	150R	S	2,D	SPC = 1,650
16S. 9E.25.300a	--	--	--	190	8	Qal	13	1950	400	T	2	C
16S. 9E.25.320	Stevens	1964	--	190'	8	Qal	13R	--	400	--	--	C
16S. 9E.25.332	McQuesten Estate	1951	--	20SR	--	Qal	--	--	157	T	2	SPC = 4,750
16S. 9E.25.441	City Dairy	1953	4,305	232R	--	Qal	55	3-26-69	300R	T	I	--

Table 1.---Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water	Remarks
						OTERO COUNTY - continued						
16S. 9E.26.552	R. J. Turner	--	4,255	200R	14	Qal	20	9- -60	700R	T	I	C
16S. 9E.26.341	do.	--	4,260	84	8	Qal	24.32	1-10-67	--	T	I	
16S. 9E.35.222	McQueston Estate	--	--	200R	12	Qal	30	3-27-69	875R	T	I	--
16S.10E. 5.122	Dave J. Wofford	--	4,670	--	8	Qal	--	--	--	S	D	--
16S.10E. 5.155	Clark	1954	4,575	240	8	--	179R	1954	70	--	H,S	C
16S.10E. 5.232	City of Alamogordo	1957	--	700R	--	Qal	--	--	500R	T	PS	Well no. 3; C
16S.10E. 5.241	do.	1964	4,880	--	--	Qal	--	--	625R	T	PS	Well no. 4; C
16S.10E. 5.244	do.	--	4,670	900R	--	Qal	--	--	2,000R	T	PS	Well no. 4: C
16S.10E. 5.515	Earl Clements	--	4,550	344R	8	Qal	270R	12-11-68	--	S	I	C
16S.10E. 5.534	John Grisack	1966	4,500	--	8	Qal	--	--	--	S	D	--
16S.10E. 5.542	Baumgartner	1955	4,545	270	8	Qal	--	--	--	--	--	C
16S.10E. 6.251	Joe Bichel	1955	4,525	295R	8	Qal	208.43 215R	7-12-54 1-14-69	150	S	D	SPC = 2,160
16S.10E. 7.225	Otero County	--	4,695	--	--	Qal	--	--	--	--	--	C
16S.10E. 8.115	Benny Graham	--	4,465	210R	--	Qal	180	12-11-68	--	--	--	--
16S.10E. 8.344	Holguin	--	--	--	--	Qal	--	--	--	T	I	C
16S.10E.18.251	City of Alamogordo	--	4,360	--	--	Qal	--	--	--	--	--	C
16S.10E.18.241	New Mexico School for the Visually Handicapped	--	4,365	--	--	Qal	--	--	500R	T	I	C
16S.10E.20.435	City of Alamogordo	--	4,410	--	--	--	--	--	--	T	I	--
16S.10E.29.243	do.	1915	4,438	300	10	Qal	155R	--	155R	T	PS	C
16S.10E.29.300	--	--	--	147	6	Qal	90	1950	250	T	I	C
16S.10E.30.422	Palmenberry	--	4,365	270	8	Qal	100R	5-19-55	30R	T	I	C
16S.10E.30.432	Haggard	1952	4,328	240	6	Qal	--	--	--	--	--	C
16S.10E.32.122	--	--	--	142	--	--	--	--	--	T	I	C
16S.10E.35.340	--	1945	4,425	648	--	--	210R	6- -45	100	H	H	C; Test hole no. 2
17S. 7E.25.421	Holloman Air Force Base	--	4,005	10	60 x 120	Qal	7	6- 1-55	--	--	--	C
17S. 8E.15.113a	do.	--	4,065.4	20	5	Qal	15.48	6- 7-60	--	H	H	
17S. 8E.15.251	do.	1949	4,081	110	4	Qal	9	2-10-56	--	--	--	C
17S. 8E.15.511	do.	1945	4,077	120	5	Qal	--	--	--	H	H	C
17S. 9E. 1.112	J. McNatt	1944	4,260	145	8	Qal	130R	--	200	T	D,I	C
17S. 9E. 1.141	J. Frambrough	1954	4,257	--	--	Qal	57	6- 2-54	--	--	D	C
17S. 9E. 1.415	Jerry Fambrough	--	4,270	--	6	Qal	68	9- -68	--	S	I	SPC = 2,000
17S. 9E. 2.111	--	1954	4,298	132	8	Qal	248	--	450	--	--	C

Table 1.---Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water	Remarks
						OTERO COUNTY - continued						
17S. 9E. 2.551	L. H. Dyrad	--	4,195	140	5	Qal	44.98	7-20-62	--	N	N	
17S. 9E. 5.122	Dillard well	--	4,155	58	4	Qal	55	4-15-54	--	--	--	C
17S. 9E. 8.244	Huss well	--	4,150	200	7	Qal	69	4-15-54	--	W	S	C
17S. 9E. 8.422	L. Green	--	4,135	--	8	Qal	25.16	4-15-54	--	W	S	
17S. 9E.12.342	C. C. Heitzel	--	4,235	185R	8	Qal	85	9- -60	--	--	--	SFC = 1,000
17S. 9E.12.422	J. H. Pruiett	1953	4,291	270	12	Qal	114.87	1- 9-60	300	T	I	C
17S. 9E.12.435	--	--	4,060	143	8	Qal	71R	--	--	--	D,I	C
17S. 9E.15.244	--	1954	4,228	310	8	Qal	95	12-27-54	--	--	--	Test hole T-20; C
17S. 9E.14.422	O. Kunkel	--	--	--	7	Qal	--	--	--	--	--	C
17S. 9E.14.422a	City of Alamogordo	--	4,175	--	8	Qal	66	9- -66	--	W	S	SFC = 1,200
17S. 9E.23.335	Holloman Air Force Base	1954	4,105	300	8	Qal	38	10-19-54	--	N	N	Test hole T-3; C
17S. 9E.23.431	do.	1954	4,119	300	8	Qal	64	10- 9-54	--	N	N	Test hole T-1; C
17S. 9E.24.111	Joe Coulter	1960	4,155	200R	8	Qal	66	9- -60	--	S	D	SFC = 1,230
17S. 9E.24.142	Holloman Air Force Base	1954	4,166	312	8	Qal	66	12- 2-54	--	N	N	Test hole T-8; C
17S. 9E.24.222	do.	1954	4,201	314	8	Qal	77	12- 3-54	--	N	N	Test hole T-9; C
17S. 9E.24.342	W. L. McCommon	1952	4,144	251	8	Qal	67.20	2-14-66	557R	T	PS	Well B-33; C
17S. 9E.24.343	Holloman Air Force Base	1955	4,136	255	10	Qal	71.59	1-26-66	250	--	--	Well B-36; C
17S. 9E.25.111	do.	--	4,120	--	7	Qal	--	--	--	--	--	C
17S. 9E.25.112	do.	1955	4,120	290	--	Qal	49	8-17-54	--	--	--	C
17S. 9E.25.123	do.	1954	4,122	312	8	Qal	64	12-10-54	--	--	--	Test hole T-21; C
17S. 9E.25.132	do.	--	4,110	250	--	Qal	--	--	--	--	--	C
17S. 9E.25.212	do.	1953	4,136.59	236	10	Qal	77.64	1-26-60	275	N	N	B-35; C
17S. 9E.25.215	do.	1953	4,129.26	243	12,10	Qal	77.61	1-26-60	391R	--	--	B-17; C
17S. 9E.25.222	do.	1952	4,144.60	271	10	Qal	73.27	1-26-60	156R	T	PS	Well B-16; C
17S. 9E.25.241	do.	--	--	300	12	Qal	70.26	1-26-60	--	--	--	Well B-37
17S. 9E.25.324	do.	1954	4,108	317	8	Qal	50	1-20-55	--	N	N	Test hole T-7; C
17S. 9E.25.345	do.	--	4,105	300	--	Qal	66.16	1-26-60	290	T	PS	Well B-38; C
17S. 9E.25.343a	do.	--	--	300	--	Qal	62.02	1-26-60	300	T	PS	Well B-40; C
17S. 9E.25.444	do.	1954	4,115	307	8	Qal	64	11-23-54	--	N	N	Test hole T-11; C
17S. 9E.24.242	L. C. Boles	--	4,110	--	--	Qal	42.97 51.35	4- 1-54 8-15-66	300	T	--	C

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water	Remarks
						OTERO COUNTY - continued						
17S. 9E.26.311	L. C. Boles	--	4,090	--	10	Qal	68	9- -68	--	S	D	--
17S. 9E.26.414	--	1956	--	312	--	Qal	--	12-15-56	--	--	--	C
17S. 9E.26.421	Harold C. Boles	1956	4,108	300R	12	Qal	64	9- -68	--	S	D	--
17S. 9E.26.424	I. U. Boles	1956	4,105	315R	14	Qal	--	--	800R	S	PS	--
17S. 9E.26.431	Holloman Air Force Base	1954	4,080	309	8	Qal	64	10-26-54	--	--	--	Test hole T-4; C
17S. 9E.35.242	Dorothy Prather	1952	4,090	290	14	Qal	45R	--	700R	1507	PS	Leased to Alamogordo well-1; C
17S. 9E.35.332	do.	1945	4,082	100	7	Qal	61	6- 8-54	--	--	--	C
17S. 9E.35.444	Jack Prather	1954	4,077	297	14	Qal	64	8-26-54	460	T	PS	Leased to Alamogordo well-2; C
17S. 9E.36.414	Holloman Air Force Base	1954	4,097	315	8	Qal	59	12-16-54	--	--	--	Test hole T-20
17S.10E. 4.114	Walter Roy	--	--	--	--	Qal	127.11	2- 8-54	--	T	I	
17S.10E. 4.132	do.	--	4,316	210	8	Qal	125	2-21-55	500	T	I	C
17S.10E. 4.211	Alamogordo Country Club	--	4,360	278R	12	Qal	169R	9-11-53	500R	T	I	--
17S.10E. 4.341	L. O. Haynes	--	--	140	2	Qal	--	--	20	--	--	C
17S.10E.10.424	Holloman Air Force Base	1948	4,212	122	10	Qal	--	--	--	--	--	Well B-5; now dry; C
17S.10E.10.424a	do.	1948	4,212	244	10	Qal	85R	-10-48	100R	--	--	Well B-9; C
17S.10E.10.432	do.	1953	4,187.26	250	--	Qal	112.30	1- 9-69	--	--	--	Well B-24; test hole; C
17S.10E.10.432a	do.	1953	4,187	260	10	Qal	106	2- 8-55	50	--	--	Well B-22; C
17S.10E.10.434	do.	1953	4,181	250	--	Qal	--	--	--	--	--	Well B-20; test hole; C
17S.10E.10.442	do.	1955	4,206	250	--	Qal	86.58 86.19	9- 8-65 1-26-68	--	--	--	Well B-19; test hole; C
17S.10E.10.442a	do.	1955	4,206.68	250	20,10	Qal	121.98	1-26-68	174R	--	--	Well B-26; C
17S.10E.10.443	do.	1955	4,191	250	--	Qal	118	1- 6-56	--	--	--	Well B-25; test hole; C
17S.10E.10.444	do.	--	--	300	12	Qal	119.27	1-26-68	--	--	--	B-43
17S.10E.19.112	do.	1950	4,165	251	10	Qal	74R	3- 7-50	190R	--	--	Well B-13; now dry; C
17S.10E.19.113a	do.	1955	4,162	243	12	Qal	77	1- 6-55	--	--	--	Well B-23; C

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water	Remarks
						OTERO COUNTY - continued						
17S.14E.19.113	Holloman Air Force Base	1953	4,140.67	175	6	Qal	48.7	1- 6-56	102	--	--	Well B-32; C
17S.10E.19.121	do.	1947	4,143	140	8	Qal	45R	1- 5-47	200R	--	--	Well B-1; Now Dry; C
17S.10E.19.121a	do.	1948	4,143.37	260	10	Qal	81.2	1- 4-56	156	--	--	Well B-10; C
17S.10E.19.122	do.	1950	--	215	8	Qal	74R	2-23-50	95	--	--	Well B-12; C
17S.10E.19.123	do.	1947	4,160.53	240	10	Qal	88.47	1-26-48	184R	--	--	Well B-2; C
17S.10E.19.132	do.	1948	4,144.98	253	10	Qal	79.40	1-26-48	90R	--	--	
17S.10E.19.141	do.	1950	4,152.46	370	10	Qal	81.75	2-14-66	230R	--	--	Well B-15; C
17S.10E.19.143	do.	1950	4,159	253	6	Qal	84	1- 6-56	--	--	--	Well B-14; C
17S.10E.19.144	do.	1948	4,148.80	280	10	Qal	86.50	1-26-48	127R	--	--	Well B-9; C
17S.10E.19.214	do.	1948	4,175.88	385	10	Qal	105.34	1-28-58	125R	--	--	Well B-6; C
17S.10E.19.234	do.	1953	4,168	230	--	Qal	98	8-25-56	--	--	--	Well B-21; Test Hole; C
17S.10E.19.241	do.	1953	4,178	250	--	Qal	94	8-28-56	--	--	--	Well B-22; Test Hole; C
17S.10E.19.321a	do.	1953	4,140.72	260	10	Qal	86.40	1- 9-69	--	D	D	
17S.10E.19.323	do.	--	4,135.25	245	10	Qal	82.28	1- 9-69	--	D	D	
17S.10E.29.314	Ben Taylor	1947	4,219	222	8	Qal	196.30	12-13-66	300	T	I	C
17S.10E.29.314a	do.	1957	4,225	300R	13	Qal	202	9- -68	--	T	D, I	--
17S.10E.30.130	Holloman Air Force Base	--	4,127	213	--	Qal	--	--	--	--	--	C
17S.10E.31.411	do.	1952	4,142.8	295	12	Qal	129.89	1-27-60	350	T	PS	Well B-4; C
17S.10E.31.412	do.	1963	4,137.2	306	12	Qal	140.85	1-27-60	250	T	PS	Well B-5; C
17S.10E.31.424	do.	1955	4,194.3	900	16	Qal	178.39	1-27-60	1,000	T	PS	SA-3; C;
17S.10E.31.432	do.	1963	4,153.16	305	12	Qal	139.89	1-27-60	350	T	PS	Well B-6; C
17S.10E.31.442	do.	1956	4,193.67	495	12 & 70	Qal	172.64 184.60	2-15-66 1-27-60	700	T	PS	Well B-7; C
17S.10E.31.444	do.	1952	4,198.00	315	12	Qal	179.61	1-27-60	500	T	PS	Well B-3; C
17S.10E.32.111	do.	1956	4,207.19	510	12	--	--	--	500	T	PS	SA-2; C
17S.10E.32.113	do.	1963	4,207.78	370	12	Qal	181.19	1-27-60	500	T	PS	SA-1; C
17S.10E.32.343	do.	1956	4,330.9	1,200	14,12,6	Qal	314.31	3-27-60	725	T	PS	SA-4; C
16S. 7E.11.443	New Mexico Div. of Hwys.	1960	4,010	250	7	Qal	36	9- -68	30	H	H	C
16S. 8E. 5.431	White Sands Nat. Mon.	1914	4,020	989	10	(Permian)	Flows	10-12-60	--	H	H	"Barton Well" old oil test; C
16S. 8E.12.113	G.S. Oliver	--	4,035	40	76 x 92	Qal	26.00	4- 8-56	--	--	--	C
16S. 9E.10.443	Jack Prather	1910	4,040	--	6	Qal	36	9- 8-68	--	W	S	C
16S. 9E.11.144	Leroy Shaw	--	4,045	--	12	Qal	45	9- 8-68	--	T	I, D	C
16S. 9E.11.213	Jack Prather	1963	4,050	122R	14	Qal	45	9- 8-68	450R	T, S	I, D	C

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water		Remarks
						OTERO COUNTY - continued							
18S. 9E.11.341	Leroy Shaw	--	4,040	--	12	Qal	44	9- 8-48	--	T	I		--
18S. 8E.11.412	Mrs. Jack Prather	--	4,045	--	--	Qal	44	2- 9-66	500	--	D, I	C	
18S. 8E.13.431	Bud Prather	--	4,043	103	8	Qal	45.63 45	4- 8-54 4- 6-55	--	--	--	C	
18S. 8E.14.432	--	--	4,040	--	--	--	37.64	1-26-48	--	W	S		
18S. 9E.23.442	Buster Prather	--	4,027	--	--	Qal	--	--	--	--	--	C	
18S. 9E.26.311	Jack Prather	--	4,013	100	--	Qal	25.26	4- 7-54	--	--	--	C	
18S. 8E.27.422	--	--	4,010	--	6	Qal	--	--	--	J	H	C	
18S. 9E.36.222	Buster Prather	--	4,035	91	12	Qal	53	9- 8-48	--	H	H	C	
18S.10E. 6.224	Mrs. Betty Douglas	1961	--	200	12	Qal	161.43	9- 8-48	200	T	PS	Well D-1; C	
18S.10E. 6.261	do.	--	4,160	154±	60.6	Qal	119.48	4- 6-54	80	--	--	C	
18S.10E. 6.322	do.	--	4,122.40	--	--	--	110.91	3-27-48	--	--	--		
18S.10E. 8.333	Tommy French	--	4,105	130±	--	Qal	90±	9- 8-48	--	S	D		--
18S.10E.16.144	Percy L. Harris	--	4,075	163±	6	Qal	68.83	9- 8-48	30±	S	PS		--
18S.10E.16.234	Benjamin T. Maya	--	4,095	200±	--	Qal	86.26	9- 8-48	--	T	I, D	C	
18S.10E.28.141	Tom Fairchild	--	4,095	93±	--	Qal	--	--	--	--	--	C	
18S.10E.30.242	--	--	4,055	93±	--	Qal	--	--	--	--	--	C	
18S.10E.31.221	Ray Prather	--	4,053	--	4	Qal	62	3-25-55	--	J	D	C	
18S.10E.33.313	Sam Fairchild	--	4,233	--	8	Qal	--	--	--	--	--	C	
19S. 6E.21.434	White Sands Missile Range	1963	3,960	200	--	Qal	--	--	--	--	--	Moreite; C	
19S. 8E. 4.412	--	--	4,080	--	5	Qal	--	9- 9-66	--	W	H		--
19S. 9E.26.311	--	--	4,030	234	8	Qal	177.33 173	3-30-53 9- 9-66	--	J	H		--
19S.10E. 3.344	Langford Ranch	--	4,125	170±	12	Qal	162	9- 9-66	--	W	S	SPC = 750	
19S.10E. 4.134	do.	--	4,080	--	--	--	--	--	--	--	--	C	
19S.10E.17.231	do.	1946	4,115	260	8	Qal	134	9- 9-66	--	W	S		--
19S.10E.17.233	do.	--	--	150	--	--	220	5-10-55	--	--	--	C	
19S.10E.32.113	Fort Bliss Military Reservation	--	4,140	200	8	Qal	184.45 185	3-30-53 9-10-66	--	H	H	SPC = 1000	
22S. 6E. 8.414	White Sands Missile Range	1961	4,030	478	14	Qal	--	--	760	T	I	Gregg Site Well; C	
22S. 6E. 8.414a	do.	1961	4,030	1,010	8	Qal	213	10-30-61	175	H	H	Observation Well; C	
23S. 6E.35.100	Fort Bliss Military Reservation	1953	4,080.7	650	--	Qal	287.5	3-29-53	--	H	H	Test hole G-1; C	
24S. 7E.34.144	do.	1953	4,070.5	1,209	--	Qal	312.7	7-14-53	--	H	H	Test hole G-2; C	

Table 1.--Records of selected wells in the Tularosa Basin - Continued

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water	Remarks
OTERO COUNTY - concluded												
25S. 6E. 4.110	Fort Bliss Military Reservation	1953	4,051.6	1,208	--	Qal	300.3	3-31-53	--	N	N	Test hole L-1; C
25S. 6E.20.343	do.	1944	4,020	440	12 & 10	Qal	293.0	3-10-54	250	T	PS	L-8; C
25S. 6E.28.444	do.	1953	3,998.7	737	--	Qal	270.0	4-17-53	--	N	N	Test hole M-2; C
25S. 7E.16.121	do.	--	4,101.9	441	8	Qal	355.5	7- 6-53	--	--	--	C
25S. 8E. 1.220	do.	--	4,140	775	6	Qal	506.70	1-12-56	20R	J	N	" --
25S. 8E.32.333	do.	1956	4,110	743	6	Qal	450	--	--	J	C	C
26S. 6E.23.332	do.	1957	3,985	380	--	Qal	263.44	1- 3-57	--	--	--	Test hole T-5; C
26S. 6E.36.130	Southern Pacific Railroad	1902	4,000	332	6	Qal	--	--	--	--	--	M-7; C
26S. 6E.36.130a	do.	--	3,998.2	400	18	Qal	283.6	1- 7-54	--	J	RR	M-6
26S. 7E. 1.241	Fort Bliss Military Reservation	1956	4,100	504	--	Qal	367.4	11-13-56	--	N	N	Test hole T-1; C
26S. 7E.32.122	do.	1953	4,061.2	1,200	3	Qal	347.9	1- 6-54	--	N	N	Test hole T-6; M-5; C
26S. 8E. 2.131	do.	1956	4,200	705	--	Qal	542.2	12-12-56	--	N	N	Test hole T-2; C
26S. 8E. 3.332	do.	1943	4,105	452	--	Qal	437.1	9-17-56	--	N	N	C
26S. 8E.32.111	do.	1933	4,094.6	825	--	Qal	447.3	6-21-33	--	N	N	Test hole T-8; M-6; C
26S. 8E.33.120	do.	--	4,095.3	300	--	Qal	162.0	4- 9-54	--	--	--	Test hole M-7; C
SIERRA COUNTY												
16S. 4E.31.344	Martin	--	3,150	97	6	Pa (?)	26	7-10-56	32	--	--	C
16S. 5E.17.431	E. Boerio	--	4,040	50	6	Qal	37.44	5-31-33	4	W	--	C
11S. 4E.27.341	D. Gilliland	--	3,650	123	3	Pm	61.99	7-11-56	--	W	--	C
12S. 2E.35.434	L. Miller	--	6,300	--	--	Pb	--	--	1	W	--	C
12S. 5E.28.432	White Sands Missile Range	1944	4,350	358	8	Qal	236.2	3-12-44	--	N	N	HC-2; C
12S. 5E.31.434	do.	1963	4,350	342	--	Qal	471.3	1-13-63	<3	N	N	HC-1; C
12S. 5E.34.313	do.	--	4,005	650	12	Qal	30.60	3-29-49	13	N	N	Construction well; C; SPC = 16,300
12S. 5E.27.421	do.	1949	4,015	700	--	Qal	--	--	--	N	N	Filled in; HC-3; C
14S. 5E.19.134	do.	--	--	73	--	Qal	56	3-22-57	--	--	--	C
SOCORRO COUNTY												
1S. 6E. 1.433	James Wells	--	--	670	8	Py	654R	8- 3-50	--	N	N	C
1S. 6E. 3.121	National Park Service	1934	6,480	675	3	Py	--	3-13-37	<5	--	D	C
1S. 6E. 7.332	E. V. Cain	Before 1928	6,404	900	--	Py	488R	6- 8-57	--	W	S	C
1S. 7E. 9.340	Mrs. Minnie Connell	1934	6,268	610	--	Py	582R	3-13-37	--	--	S, D	C
1S. 6E.11.322	J. L. Kite	1952	6,432	842	6	Py	654R	3-12-57	--	--	S	C

Table 1.--Records of selected wells in the Tularosa Basin - Concluded

Location no.	Owner or name	Year completed	Altitude (feet)	Depth of well (feet)	Diameter of casing (inches)	Geologic source	Water level: Depth below land surface datum (feet)	Water level: Date	Yield (gpm)	Method of lift	Use of water	Remarks
						SOCORRO COUNTY - concluded						
1S. 8E.21.431	E. V. Cain	--	6,216	800	--	Py	650±	8- 2-50	--	N	N	C
6S. 5E.36.343	Trail Canyon	--	6,020	330	8	Qal	300±	5- 7-55	3	W	S	C
6S. 6E. 9.334	Gordon	--	6,050	31	72 x 48	Pm	9.03	3- 3-55	--	N	N	C
6S. 6E.16.411	Owens	--	6,175	18	60 x 36	Pm	14.45	3-17-55	--	N	N	C
6S. 6E.26.436	do.	1952	6,300	315	6	Py or Po	301.65	3- 8-55	--	W	S	C
6S. 6E.26.333	A. F. Boco	1952	6,444	295	6	Pb	30.54	3- 8-55	20	N	S	C
6S. 6E.26.226	Boco Test	1956	6,500	210	8.6	Pb	29.23 32	2-27-56 10-15-56	2	J	--	C
6S. 8E.33.241	North	--	5,650	640	6	Py	630±	--	--	W	S	C
7S. 7E. 9.222	Hill	--	5,775	--	6	Py	68.48	5-19-55	--	W	S	C
7S. 7E.18.444	do.	--	5,760	160	5	Pb	136.25	3-10-55	--	N	N	C
7S. 8E. 8.322	Red Canyon 2	1956	5,520	710	10	Py	242.78	11-21-56	200+	T	IRR	C
7S. 8E. 8.412	Red Canyon 1	1956	5,495	702	10	Py	214.90	11-21-56	38	T	IRR	C
7S. 8E.14.325	North	1915	5,160	700	6	Py	405.0	1-12-57	15	J	--	C
7S. 8E.22.223	Knox	1956	5,140	630	6	Py	185.92	1-12-57	3	V	--	C
7S. 8E.29.144	Stevens Tank	--	5,265	370	6	Py	225.25	6-22-55	--	N	--	C
7S. 8E.34.322	South	1956	4,938	675	6	Py	251.65	1-12-57	5	J	--	C
8S. 5E.32.931	Murray	1903	5,115	230	6	Pzg	192.28	5-20-55	100	T	PS	C
9S. 5E.15.143	Mockingbird Gap	--	5,020	160	--	Pb	69.18	8-31-55	30	J, S	--	C
9S. 5E.34.313	Hoy	1951	5,125	175	5	Pzg	138.55	4-11-55	--	N	--	C
						VALENCIA COUNTY						
1N. 7E.26.332	E. V. Cain	--	--	740	--	Py	692	--	--	W	S	C
1N. 8E. 4.222	do.	--	6,540	520	--	Py	500	--	--	W	S	C
1N. 8E.33.210	Homer Jackson	--	6,550±	500 - 600	--	Py	500+	--	--	W	S	C
1N. 8E.35.421	J. L. Kite	--	6,340±	55	24	Qal	50	3-13-57	2	--	D	C

Table 2.--Records of selected springs in the Tularosa Basin, New Mexico

EXPLANATION:

Location no.: See explanation of well numbering system in text.

Geological source: Qal, Quaternary alluvium; Qb, Quaternary basalt; Ku, Cretaceous rocks, undivided; Km, Mancos Shale Kmv, Mesaverde Group; Kd, Dockum Group; Psa, San Andres Limestone; Py, Yeso Formation; Pa, Abo Sandstone; Pu, Pennsylvanian rocks, undivided; Pm, Madera Limestone

Yield: E, following number indicates yield is estimated; other valves are measured.

Remarks: C, indicates chemical analyses is listed in table 3; T, temperature of spring water; SPC, specific conductance of spring water, in micromhos at 25°C.

Location no.	Field designation	Date observed	Altitude (feet)	Geologic source	Yield (gpm)	Remarks
6S. 6E.20.412	Deer Spring	3- 4-55	6,550	Pm	1-2	C
6S. 6E.20.441	Rabbit Spring	3- 4-55	6,560	Qal	--	C
6S. 6E.31.223	Council Spring	3- 2-55	7,474	Pm	1-15E	C
7S. 6E. 9.143	Yates Spring	3- 4-55	6,800	Pm	--	C
7S. 6E.29.414	Dripping Spring, North Gallery	3-30-55	6,200	Pm	1-2E	C
7S. 6E.29.414A	Dripping Spring, South Gallery	3-30-55	6,200	Pm	--	C
7S. 7E. 6.124	Seep Spring	3-17-55	6,100	Pa	10±	C
7S. 7E.15.421	Red Canyon Spring	6-21-55	5,550	Pa	1-2E	C
7S.10E.26.420	Carrizozo Spring	1911	5,370	Qal,K	50E (1911)	C
8S. 6E.27.000	--	1911	--	--	--	C
8S. 9E.29.123	Lower Willow Spring	5-18-55	4,875	Km,Qal	5	C
8S.10E.22.300	Upper Coyote Spring	1911	5,475	Qal,K	6E	C
9S. 8E.23.423	Bull Gap Spring	11- 3-55	4,825	Kd	2	C
9S. 8E.34.143	Phillips Spring	5-31-55	4,750	Kd	3	C
9S. 9E. 9.222	Root Spring	8-23-55	5,200	Kmv	5	C
9S. 9E.10.100	Jakes Tunnel	1911	5,200	Kmv	3	C
9S. 9E.10.343	Jakes Spring	8-23-55	5,290	Kmv	30	C
9S. 9E.32.211	Milagro Spring	8-18-55	5,265	Kmv	20	C
10S. 6E.23.000	Mound Spring No. 7	1911	4,350	Qal	5E	C
10S. 6E.23.200	Mound Springs	1911	--	--	--	C
10S. 6E.23.242	do.	6- 2-55	4,350	Qal	3E	C
10S. 6E.23.242A	do.	8- 6-57	--	Qal	--	C

Table 2.--Records of selected springs in the Tularosa Basin, New Mexico - Concluded

Location no.	Field designation	Date observed	Altitude (feet)	Geologic source	Yield (gpm)	Remarks
10S. 6E.26.000	Mound Spring No. 25	1911	4,350	Qal	2E	C
11S. 4E.35.233	Brady Spring	8-31-60	--	--	--	C
11S. 9E.35.100	Falla Ranch Spring	1911	4,700	Ku	--	C
12S. 4E. 2.141	Grapevine Spring	8-31-60	--	--	1	C
12S. 7E. 8.422	Malpais Spring	8-14-69	4,125	Qb	220	C
13S. 2E.12.311	Rhodea Spring	11-15-56	5,970	Pa	1/4E	C
13S. 9E. 5.411	Chosa Spring	3-25-69	4,300	Qal	5E	C, T = 18°C, SPC = 2,520
13S.12E.27.400	Sulphur Spring	1911	6,900	--	--	C
14S. 8E.35.233	Tula (Barrel) Spring	3-26-69	4,120	Qal	25E	C, T = 16°C, SPC = 2,220
14S. 9E. 3.333	Lomitas Spring	4-18-69	4,320	Qal	5E	C
15S. 8E.10.400	--	1911	--	Qal	--	C
15S. 9E. 9.422	Mesquite Springs	1911	--	Qal	--	C
16S. 9E. 7.100	--	1911	--	Qal	--	C
16S. 9E.14.100	--	1911	--	Qal	--	C
16S.11E. 2.000	Wooten Spring	1911	--	Pm	--	C
17S. 8E. 6.200	Salt Spring	1911	4,045	Qal	--	C
17S. 8E.28.300	Black Spring	1911	--	Pu(?)	--	C
18S. 8E.17.400	Harrington Spring	4- 8-54	--	--	--	C
18S. 8E.17.411	Salt Spring	1911	--	--	--	C
19S. 5E. 4.100	--	1911	3,900	Qal	--	C
20S. 4E.17.400	Burke Spring	8-26-62	5,500	--	2	C
21S. 4E.12.413	Bonney Spring	6-11-60	--	Qal	1	C
23S. 4E.24.000	Globe Spring	1911	--	--	2	C

Table 3.--Chemical analyses of water from springs in the Tularosa Basin, New Mexico

(Chemical constituents in milligrams per liter)

EXPLANATION:

Location no.: See explanation of well-numbering system in text.

Location no.	Field designation	Date of collection	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na) + potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$: Calcium magnesium hardness	Hardness as $CaCO_3$: Noncarbonate hardness	Specific conductance (micromhos at 25°C)	pH	Temperature °C
6S. 6E.20.412	Deer Spring	3- 4-55	20	--	114	12	8.0	366	0	50	11	0.2	10	390	334	58	625	7.8	3.3
6S. 6E.20.441	Rabbit Spring	3- 4-55	5.9	--	90	13	17	308	0	40	14	.2	.1	331	278	26	570	7.5	5.6
6S. 6E.31.223	Council Spring	3- 2-55	13	--	127	7.6	3.4	344	0	39	9	.2	25	393	348	66	650	7.7	7.2
7S. 6E. 9.143	Yetes Spring	3- 4-55	15	--	106	17	20	260	0	99	37	.2	12	434	334	122	706	7.8	9.4
7S. 6E.29.414	Dripping Spring, N. Gallary	3-30-55	21	--	71	11	60	171	0	167	14	.4	22	450	222	82	451	7.5	9.4
7S. 6E.29.414A	Dripping Spring, S. Gallary	3-30-55	20	--	96	11	112	533	0	51	17	.4	15	584	284	0	1,260	7.8	6.7
7S. 7E. 6.124	Seep Spring	3-17-55	46	--	81	68	80	556	0	137	33	1.0	.1	724	486	18	1,130	7.8	11.7
7S. 7E. 6.124	do.	7-11-55	41	--	75	87	129	626	0	225	53	1.0	4.0	919	544	32	1,400	7.8	--
7S. 7E.15.421	Rad Canyon Spring	2-25-54	20	--	479	276	58	160	0	2,170	45	1.0	.1	3,130	2,330	2,200	3,300	--	--
7S. 7E.15.421	do.	2-25-54	--	--	--	--	--	192	0	--	42	--	--	--	--	--	2,990	--	--
7S. 7E.15.421	do.	6-21-55	--	--	--	--	--	190	0	1,880	43	--	--	--	2,060	1,900	3,030	7.7	23.9
7S.10E.26.420	Carrieoeo Spring	1911	--	--	230	59	201	--	75	878	155	--	--	1,603	--	--	--	--	15.0
7S.10E.26.420	do.	--	--	--	339	64	230	224	0	1,080	210	1.0	2.9	2,040	--	1,110	2,350	--	--
8S. 6E.27.000	--	1911	--	--	240	187	164	--	90	1,337	133	--	--	2,244	--	--	--	--	--
8S. 9E.29.123	Lower Willow Spring	1911	--	--	222	105	251	--	72	1,083	332	--	--	2,280	--	--	--	--	15.6
8S. 9E.29.123	do.	5-18-55	--	--	--	--	--	150	--	1,140	470	--	--	2,560	1,420	13	3,340	7.4	16.7
8S.10E.22.300	Upper Coyote Spring	1911	--	--	208	47	94	--	104	520	144	--	--	1,258	--	--	--	--	14.7
9S. 8E.23.423	Bull Gap Spring	11- 3-55	20	--	578	301	684	249	0	2,680	830	.5	1.0	5,220	2,680	2,480	6,290	7.6	--
9S. 8E.34.143	Phillips Spring	1911	--	--	230	85	245	--	119	954	204	--	--	1,938	--	--	--	--	17.8
9S. 8E.34.143	do.	5-31-55	--	--	--	--	--	204	--	810	272	--	--	1,760	970	803	2,420	7.9	20.0
9S, 9E. 9.222	Root Spring	8-23-55	--	--	--	--	170	177	0	842	285	.2	7.0	1,840	1,060	915	2,420	7.7	17.2
9S. 9E.10.100	Jakes Tunnel	1911	--	--	262	96	93	--	59	838	199	--	--	1,722	--	--	--	--	--
9S. 9E.10.343	Jakes Spring	1911	--	--	241	86	90	--	89	700	195	--	--	1,625	--	--	--	--	16.7
9S, 9E.10.343	do,	8-23-55	--	--	--	--	135	105	0	744	166	.5	9.8	1,480	810	724	1,920	7.6	17.2
9S. 9E.32.211	Milegro Spring	1911	--	--	131	56	149	--	104	500	133	--	--	1,254	--	--	--	--	--
9S. 9E.32.211	do.	--	--	--	209	70	129	196	0	526	270	--	2.2	1,300	--	810	1,300	7.7	--
9S, 9E.32.211	do,	8-18-55	--	--	--	--	--	198	0	564	280	--	--	1,430	820	658	2,050	7.5	--

Table 3.--Chemical analyses of water from springs in the Tularosa Basin, New Mexico - Concluded

Location no.	Field designation	Date of collection	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na) + potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$: Calcium magnesium hardness	Hardness as $CaCO_3$: Noncarbonate hardness	Specific conductance (micromhos at 25°C)	pH	Temperature °C
10S. 6E.23.000	Mound Spring No. 7	1911	--	--	629	168	578	--	78	2,055	886	--	--	4,682	--	--	--	--	--
10S. 6E.23.242	Mound Spring	6- 2-55	--	--	--	--	--	151	0	1,950	710	--	--	4,170	--	2,450	4,850	7.6	16.1
10S. 6E.23.242	do.	8- 6-57	--	--	--	--	--	151	0	2,050	740	--	--	--	2,540	2,420	5,050	7.4	--
10S. 6E.26.000	Mound Spring No. 25	1911	--	--	623	157	407	--	78	1,900	695	--	--	4,133	--	--	--	--	--
11S. 4E.35.233	Brady Spring	8-31-60	--	--	--	--	--	394	0	590	123	--	--	--	995	672	1,820	7.1	--
11S. 9E.35.100	Falls Ranch Spring	1911	--	--	312	59	219	--	149	49	186	--	--	1,897	--	--	--	--	--
12S. 4E. 2.141	Grapevine Spring	8-31-60	--	--	--	--	--	329	0	269	46	--	--	--	546	276	1,090	7.5	--
12S. 7E. 8.422	Malpais Spring	1911	--	--	739	168	748	--	60	2,367	1,130	--	--	5,500	--	--	--	--	18.9
12S. 7E. 8.422	do.	8- 6-57	--	--	--	--	--	60	0	1,930	1,200	--	--	--	2,510	2,460	6,170	7.2	--
12S. 7E. 8.422	do.	4-24-62	53	--	700	149	621	54	0	1,910	1,180	1.3	11	4,650	2,360	2,320	6,190	6.9	--
13S. 2E.12.311	Rhodes Spring	11-15-56	--	--	--	--	40	273	0	718	35	--	19	--	950	--	1,670	7.4	13.9
13S. 9E. 5.411	Chose Spring	1911	--	--	437	135	293	--	74	1,821	191	--	--	3,272	--	--	--	--	--
13S.12E.27.400	Sulphur Spring	1911	--	--	230	53	48	--	194	482	50	--	--	--	--	--	--	--	--
14S. 8E.35.233	Tula or Barrel Spring	1911	--	--	268	106	90	--	119	887	129	--	--	1,838	--	--	--	--	--
14S. 8E.35.233	do.	6-21-57	25	--	179	77	67	178	0	550	132	.5	4.1	1,250	763	617	1,580	7.2	--
14S. 8E.35.233	do.	6-22-57	26	--	298	121	84	226	0	899	210	.6	6.6	1,760	1,240	1,060	2,310	7.4	--
14S. 9E. 3.333	Lomitas Spring	1911	--	--	448	120	107	--	89	1,409	165	--	--	2,602	--	--	--	--	--
15S. 8E.10.400	--	1911	--	--	601	163	1,737	--	74	2,719	2,118	--	--	8,056	--	--	--	--	--
15S. 9E. 9.422	Mesquite Springs	1911	--	--	372	157	308	--	224	1,303	368	--	--	7,846	--	--	--	--	--
16S. 4E.14.100	--	1911	--	--	722	184	2,266	--	136	2,432	3,348	--	--	9,413	--	--	--	--	18.9
16S. 9E. 7.100	--	1911	--	--	503	226	453	--	104	2,100	576	--	--	4,576	--	--	--	--	--
16S.11E. 2.000	Wooten Spring	1911	--	--	272	56	48	--	217	486	63	--	--	1,324	--	--	--	--	--
17S. 8E. 6.200	Salt Spring	1911	--	--	585	144	1,734	--	72	2,570	2,143	--	--	7,504	--	--	--	--	--
17S. 8E.28.300	Black Spring	1911	--	--	623	187	2,060	--	85	2,971	2,526	--	--	8,970	--	--	--	--	--
18S. 8E.17.400	Harrington Spring	4- 8-54	--	--	--	--	1,320	119	0	1,510	2,670	--	--	--	2,570	2,470	11,600	--	27.2
18S. 8E.17.411	Salt Spring	1911	--	--	700	--	3,620	--	180	2,970	3,600	--	--	--	--	--	--	--	--
19S. 5E. 4.100	--	1911	--	--	719	5,239	22,870	--	123	25,430	32,900	--	--	94,980	--	--	--	--	--
20S. 4E.17.400	Burks Spring	8-26-62	8.0	--	49	86	35	376	0	204	28	.3	7.0	740	480	--	987	7.3	22.8
21S. 4E.12.413	Bonney Spring	6-11-60	--	--	--	--	--	404	0	157	24	--	--	--	496	165	913	7.9	21.1
23S. 4E.24.000	Globe Spring	1911	--	--	44	15	39	--	64	123	16	--	--	302	--	--	--	--	--

Table 4.--Chemical analyses of water from wells in the Tularosa Basin

DONA ANA COUNTY, NEW MEXICO

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
16 S 4 E 36.100	- -11	-	120	- - -	- - -	347.0	285.0	1040	- - -	131	1208	2001.00
17 S 4 E 2.211	2-12-67	-	352	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	613	156.00
17 S 4 E 2.211	2-15-67	620-	735	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	2330	24200.00
17 S 4 E 2.211	2-24-67	260-	654	23.0	.01	418.0	264.0	3040	203	0	744	5520.00
17 S 5 E 26.200	- -11	-	210	- - -	- - -	126.0	69.0	105	- - -	123	378	162.00
18 S 5 E 34.300	- -11	-	8	- - -	- - -	395.0	751.0	3383	- - -	112	9379	1030.00
19 S 5 E 5.100	- -11	-	65	- - -	- - -	120.0	106.0	858	- - -	104	241	1541.00
19 S 5 E 17.333	5- 3-63	-	650	25.0	.02	81.0	36.0	42	254	- - -	162	42.00
19 S 5 E 19.413	1-21-67	-	438	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	177	34.00
19 S 5 E 19.413	1-23-67	705-	740	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	178	38.00
19 S 5 E 19.413	1-26-67	985-	1016	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	164	480.00
19 S 5 E 19.413	2- 1-67	436-	740	24.0	.13	82.0	40.0	32	258	0	166	34.00
19 S 5 E 21.111	6-27-63	284-	290	21.0	.02	53.0	38.0	94	212	- - -	258	45.00
19 S 5 E 21.111	7- 3-63	605-	705	- - -	- - -	- - -	- - -	- - - -	182	- - -	1890	18100.00
19 S 5 E 27.100	- -11	-	193	- - -	- - -	66.0	44.0	49	- - -	122	161	58.00
19 S 5 E 28.443	5-21-63	236-	310	21.0	.02	53.0	38.0	94	212	0	225	55.00
19 S 5 E 28.443	5-24-63	670-	749	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	2640	20500.00
20 S 5 E 34.133	12-16-66	-	392	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	212	46.00
20 S 5 E 34.133	12-21-66	707-	742	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	215	34.00
20 S 5 E 34.133	12-30-66	973-	1010	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	209	44.00
20 S 5 E 34.133	1-14-67	330-	990	24.0	0.	86.0	47.0	38	262	0	200	41.00
20 S 5 E 36.300	- -11	-	144	- - -	- - -	77.0	57.0	49	- - -	100	250	75.00
21 S 4 E 11.333	11-16-66	-	189	24.0	.02	82.0	13.0	60	238	0	115	34.00
21 S 4 E 22.222	10-13-60	-	130	35.0	- - -	94.0	13.0	85	218	- - -	216	30.00
21 S 4 E 23.233	10- 5-66	82-	250	34.0	0.	82.0	- - -	53	221	0	116	28.00
21 S 4 E 25.232	3- 4-53	-		33.0	- - -	86.0	14.0	56	22	- - -	134	29.00
21 S 5 E 12.334	3- 5-53	-		62.0	- - -	46.0	45.0	100	250	- - -	242	38.00
21 S 5 E 14.434	12-11-67	109-	249	60.0	0.	195.0	81.0	207	194	0	922	104.00
21 S 5 E 14.434	12-18-67	615-	666	15.0	.02	575.0	685.0	2500	278	0	6450	1930.00
21 S 5 E 15.411	3-13-59	-	235	29.0	.08	58.0	42.0	40	197	- - -	169	41.00
21 S 5 E 17.244	6-25-60	-	472	29.0	- - -	74.0	51.0	14	292	0	142	24.00
21 S 5 E 17.424	9-29-60	-	760	30.0	.02	75.0	40.0	41	275	- - -	162	29.00
21 S 5 E 20.344	11-14-67	273-	458	39.0	.91	54.0	28.0	149	188	8	173	89.00
21 S 5 E 20.344	11-16-67	670-	703	- - -	- - -	37.0	6.9	38	158	0	110	62.00
21 S 5 E 20.344	11-20-67	470-	570	43.0	.03	77.0	15.0	48	182	8	140	37.00
21 S 5 E 20.344	11-20-67	965-	1016	36.0	.01	64.0	9.8	126	222	0	173	70.00
21 S 5 E 32.222	4-20-67	325-	478	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	105	28.00
21 S 5 E 32.222	4-28-67	1075-	1111	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	459	4940.00
21 S 5 E 32.222	5-17-67	285-	702	38.0	.02	51.0	10.0	37	148	0	84	24.00
22 S 4 E 1.431	7-28-66	-	598	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	198	50.00
22 S 4 E 1.431	8- 4-66	-	598	30.0	.24	86.0	17.0	62	148	0	186	58.00
22 S 4 E 1.444	7-14-53	-	1004	24.0	.03	44.0	9.5	3	188	- - -	41	14.00
22 S 4 E 11.244	2- 2-66	853-	895	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	123	36.00
22 S 4 E 11.244	5-10-66	1348-	1378	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	159	39.00
22 S 4 E 11.244	6-19-66	1820-	1897	13.0	- - -	10.8	1.2	127	174	6	91	24.00

Table 1. Chemical analyses of water from wells in the Tularosa Basin - Continued

DONA ANA COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
16 S 4 E 36.100	- -11	- - -	- - -	- -	6100	- - -	- - -	- - -	- -	- -
17 S 4 E 2.211	2-12-67	- - -	- - -	- -	- - -	- - -	- - -	1490	- -	22.8
17 S 4 E 2.211	2-15-67	- - -	- - -	- -	- - -	- - -	- - -	6160	- -	26.7
17 S 4 E 2.211	2-24-67	.70	6.1	- -	10100	2130	1960	16700	7.7	25.6
17 S 5 E 26.200	- -11	- - -	- - -	- -	1067	- - -	- - -	- - -	- -	- -
18 S 5 E 34.300	- -11	- - -	- - -	- -	15600	- - -	- - -	- - -	- -	- -
19 S 5 E 5.100	- -11	- - -	- - -	- -	3019	- - -	- - -	- - -	- -	- -
19 S 5 E 17.333	5- 3-63	.50	6.9	- -	520	352	144	809	7.4	- -
19 S 5 E 19.413	1-21-67	- - -	- - -	- -	- - -	- - -	- - -	778	- -	23.3
19 S 5 E 19.413	1-23-67	- - -	- - -	- -	- - -	- - -	- - -	799	- -	27.8
19 S 5 E 19.413	1-26-67	- - -	- - -	- -	- - -	- - -	- - -	2150	- -	27.8
19 S 5 E 19.413	2- 1-67	.40	6.6	- -	512	370	158	794	7.6	25.0
19 S 5 E 21.111	6-27-63	.70	8.6	- -	617	290	116	930	7.8	23.9
19 S 5 E 21.111	7- 3-63	- - -	- - -	- -	- - -	- - -	- - -	49300	7.5	26.7
19 S 5 E 27.100	- -11	- - -	- - -	- -	502	- - -	- - -	- - -	- -	- -
19 S 5 E 28.443	5-21-63	.70	8.6	- -	599	290	116	917	7.8	- -
19 S 5 E 28.443	5-24-63	- - -	- - -	- -	- - -	- - -	- - -	56200	- -	- -
20 S 5 E 34.133	12-16-66	- - -	- - -	- -	- - -	- - -	- - -	884	- -	23.3
20 S 5 E 34.133	12-21-66	- - -	- - -	- -	- - -	- - -	- - -	886	- -	27.2
20 S 5 E 34.133	12-30-66	- - -	- - -	- -	- - -	- - -	- - -	900	- -	27.2
20 S 5 E 34.133	1-14-67	.50	7.2	- -	573	406	192	896	7.5	26.1
20 S 5 E 36.300	- -11	- - -	- - -	- -	630	- - -	- - -	- - -	- -	- -
21 S 4 E 11.333	11-16-66	4.00	22.0	- -	471	260	65	746	7.7	- -
21 S 4 E 22.222	10-13-60	5.00	17.0	- -	602	288	110	870	7.1	20.6
21 S 4 E 23.233	10- 5-66	4.00	29.0	- -	468	260	79	711	7.5	22.2
21 S 4 E 25.232	3- 4-53	4.00	22.0	- -	489	272	88	744	- -	- -
21 S 5 E 12.334	3- 5-53	.70	6.4	- -	663	300	95	950	- -	- -
21 S 5 E 14.434	12-11-67	1.80	.2	- -	1670	820	661	2200	7.5	21.0
21 S 5 E 14.434	12-18-67	3.30	.4	- -	12300	4250	4020	13900	7.5	22.0
21 S 5 E 15.411	3-13-59	1.60	5.4	- -	483	316	154	751	7.5	24.4
21 S 5 E 17.244	6-25-60	1.00	4.6	- -	484	396	156	- - -	7.8	- -
21 S 5 E 17.424	9-29-60	1.50	4.3	- -	531	352	126	781	7.7	28.9
21 S 5 E 20.344	11-14-67	3.10	6.8	- -	591	146	0	917	8.1	24.0
21 S 5 E 20.344	11-16-67	- - -	4.6	- -	- - -	- - -	- - -	684	7.8	26.0
21 S 5 E 20.344	11-20-67	2.50	8.4	- -	460	255	106	700	7.8	28.0
21 S 5 E 20.344	11-20-67	1.30	12.0	- -	601	200	18	920	7.7	29.0
21 S 5 E 32.222	4-20-67	- - -	- - -	- -	- - -	- - -	- - -	600	- -	24.4
21 S 5 E 32.222	4-28-67	- - -	- - -	- -	- - -	- - -	- - -	14700	- -	- -
21 S 5 E 32.222	5-17-67	.80	7.1	- -	325	170	48	492	8.2	29.4
22 S 4 E 1.431	7-28-66	- - -	- - -	- -	- - -	- - -	- - -	822	- -	26.7
22 S 4 E 1.431	8- 4-66	2.70	21.0	- -	536	286	164	827	7.4	26.7
22 S 4 E 1.444	7-14-53	.40	.5	- -	257	149	0	409	7.4	- -
22 S 4 E 11.244	2- 2-66	- - -	- - -	- -	- - -	- - -	- - -	356	- -	- -
22 S 4 E 11.244	5-10-66	- - -	- - -	- -	- - -	- - -	- - -	960	- -	- -
22 S 4 E 11.244	6-19-66	9.60	.8	- -	369	38	8	606	8.4	- -

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

DONA ANA COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
22 S 4 E 11.244	7- 7-66	574-	1040	37.0	.04	65.0	19.0	54	158	0	158	38.00
22 S 4 E 13.223	6-18-53	-		36.0	- - -	60.0	8.4	39	138	- - -	64	26.00
22 S 4 E 13.311	3-16-59	-	534	42.0	.06	33.0	8.1	20	128	- - -	37	8.50
22 S 4 E 13.333	6- 4-62	-	600	44.0	.04	39.0	9.4	20	114	- - -	52	16.00
22 S 4 E 13.411	7-13-61	-	910	39.0	- - -	36.0	7.3	23	136	- - -	41	9.20
22 S 4 E 13.424	6- 4-62	-	820	40.0	.05	40.0	4.6	25	133	- - -	45	10.00
22 S 4 E 13.432	6- 4-62	-		40.0	14.00	38.0	6.3	24	134	- - -	45	9.80
22 S 4 E 14.133	11-18-60	-	515	43.0	- - -	50.0	10.0	27	178	- - -	51	15.00
22 S 4 E 14.211	6- 1-53	-	875	33.0	- - -	60.0	12.0	56	300	- - -	50	15.00
22 S 4 E 16.112	4-16-53	-		40.0	- - -	67.0	15.0	33	170	- - -	112	16.00
22 S 4 E 23.214	5- 5-55	-	570	41.0	2.50	33.0	8.6	27	133	- - -	45	12.00
22 S 4 E 23.444	12-22-66	734-	800	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	95	22.00
22 S 4 E 23.444	1-29-67	1573-	1600	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	81	19.00
22 S 4 E 23.444	3-15-67	1881-	1950	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	67	17.00
22 S 4 E 23.444	3-30-67	-	1820	35.0	.25	34.0	6.3	39	126	0	73	10.00
22 S 4 E 24.212	3-16-59	-	505	44.0	.03	36.0	7.8	22	126	- - -	49	9.20
22 S 4 E 24.212A	5-20-63	721-	721	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	210	388.00
22 S 4 E 24.212A	5-29-63	687-	825	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	59	12.00
22 S 4 E 24.212A	7-23-63	-	825	44.0	.05	34.0	7.5	25	123	- - -	58	10.00
22 S 4 E 24.222A	6-18-53	-	432	35.0	- - -	32.0	5.8	36	128	- - -	50	16.00
22 S 5 E 5.313	8- 3-66	-	555	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	104	32.00
22 S 5 E 5.313	8-26-66	1335-	1365	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	2890	12400.00
22 S 5 E 5.313	9-16-66	-		41.0	.01	39.0	6.4	25	144	0	44	13.00
22 S 5 E 7.342	6-19-63	-	345	- - -	- - -	- - -	- - -	- - - -	153	- - -	76	21.00
22 S 5 E 7.342	7-25-63	906-	1000	- - -	- - -	- - -	- - -	- - - -	168	0	84	25.00
22 S 5 E 7.342	8- 8-63	326-	966	33.0	- - -	24.0	1.9	60	130	0	58	14.00
22 S 5 E 15.221	9- 4-67	5890-	6080	65.0	.10	1300.0	72.0	19000	166	0	1500	30000.00
22 S 5 E 15.221	10- 3-67	4865-	5900	54.0	.07	2170.0	8.1	15100	94	0	1230	25700.00
22 S 5 E 15.221	10- 5-67	4140-	4900	24.0	.16	2120.0	27.0	15100	71	0	1240	25900.00
22 S 5 E 15.221	10- 6-67	3700-	4100	19.0	.23	1260.0	62.0	17600	71	0	1450	28500.00
22 S 5 E 15.221	10-13-67	2590-	3700	17.0	.01	1660.0	792.0	41400	112	0	1060	66000.00
22 S 5 E 15.221	10-20-67	210-	360	.4	.94	32.0	1.9	146	133	9	161	82.00
22 S 5 E 16.111	6-10-53	956-	1803	13.0	- - -	499.0	85.0	2210	101	- - -	568	4050.00
22 S 5 E 16.111	6-12-53	-		16.0	.03	59.0	8.6	53	204	0	21	31.00
22 S 5 E 20.111	7-10-53	-	1000	18.0	.02	24.0	3.5	51	99	- - -	68	17.00
22 S 5 E 29.232	9- 2-66	1220-	1268	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	136	890.00
22 S 5 E 29.232	10-28-66	1701-	1806	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	910	2240.00
22 S 5 E 29.232	11-16-66	-	780	36.0	.12	34.0	5.6	30	118	0	54	12.00
22 S 5 E 31.424	5-20-53	-	348	43.0	.02	23.0	6.0	18	99	- - -	25	9.50
22 S 5 E 32.311A	5-11-51	-		47.0	.01	27.0	7.2	20	107	- - -	36	10.00
22 S 5 E 32.313	5-20-53	-	267	41.0	.01	27.0	7.9	19	103	- - -	34	11.00
22 S 5 E 32.321	5-11-51	-	339	48.0	.01	27.0	7.2	20	105	- - -	36	11.00
22 S 5 E 32.323	4- 6-48	-	304	56.0	.07	26.0	6.6	19	105	- - -	32	9.20
22 S 5 E 33.244	12-29-66	1630-	1652	13.0	.13	1700.0	379.0	10200	43	0	3600	17100.00
22 S 5 E 33.244	1- 3-69	724-	746	26.0	.09	47.0	4.7	63	93	0	112	54.00

Table 7. Chemical analyses of water from wells in the Tularosa Basin - Continued

DONA ANA COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
22 S 4 E 11.244	7- 7-66	.80	13.0	- -	463	242	112	700	7.6	28.7
22 S 4 E 13.223	6-18-53	.50	.1	- -	335	184	18	505	8.7	- -
22 S 4 E 13.311	3-16-59	.50	3.6	- -	216	116	11	312	7.3	23.3
22 S 4 E 13.333	6- 4-62	.40	12.0	- -	249	136	42	367	6.9	23.9
22 S 4 E 13.411	7-13-61	.50	3.4	- -	226	- - -	120	333	7.1	24.4
22 S 4 E 13.424	6- 4-62	.40	3.3	- -	234	120	11	344	7.1	25.6
22 S 4 E 13.432	6- 4-62	.20	3.3	- -	233	121	11	339	7.4	25.6
22 S 4 E 14.133	11-18-60	1.20	4.9	- -	290	168	22	434	7.7	22.2
22 S 4 E 14.211	6- 1-53	.50	.1	- -	375	199	- - -	610	7.6	- -
22 S 4 E 18.112	4-16-53	1.20	24.0	- -	392	228	89	574	- -	- -
22 S 4 E 23.214	5- 5-55	.20	2.9	- -	235	118	9	341	7.2	22.2
22 S 4 E 23.444	12-22-66	- - -	- - -	- -	- - -	- - -	- - -	431	- -	25.0
22 S 4 E 23.444	1-29-67	- - -	- - -	- -	- - -	- - -	- - -	412	- -	25.0
22 S 4 E 23.444	3-15-67	- - -	- - -	- -	- - -	- - -	- - -	436	- -	- -
22 S 4 E 23.444	3-30-67	.50	.3	- -	272	111	8	410	7.4	24.4
22 S 4 E 24.212	3-16-59	.40	2.0	- -	232	122	18	334	7.1	24.4
22 S 4 E 24.212A	5-20-63	- - -	- - -	- -	- - -	- - -	- - -	1980	- -	- -
22 S 4 E 24.212A	5-29-63	- - -	- - -	- -	- - -	- - -	- - -	379	- -	- -
22 S 4 E 24.212A	7-23-63	.50	2.4	- -	233	116	15	321	7.4	26.1
22 S 4 E 24.222A	6-18-59	8.00	1.9	- -	242	104	0	347	8.1	23.9
22 S 5 E 5.313	8- 3-66	- - -	- - -	- -	- - -	- - -	- - -	605	8.2	27.8
22 S 5 E 5.313	8-26-66	- - -	- - -	- -	- - -	- - -	- - -	36700	- -	27.8
22 S 5 E 5.313	9-16-66	.40	3.9	- -	239	132	14	358	- -	26.7
22 S 5 E 7.342	6-19-63	- - -	- - -	- -	- - -	- - -	- - -	480	7.7	26.7
22 S 5 E 7.342	7-25-63	- - -	- - -	- -	- - -	- - -	- - -	525	8.1	- -
22 S 5 E 7.342	8- 8-63	1.60	8.4	- -	265	68	0	370	7.5	- -
22 S 5 E 15.221	9- 4-67	2.10	5.1	- -	52800	3550	3410	75200	6.9	54.4
22 S 5 E 15.221	10- 3-67	2.30	4.9	- -	44300	5450	5370	63700	6.9	53.3
22 S 5 E 15.221	10- 5-67	2.60	4.2	- -	44500	5400	5340	63700	6.3	43.3
22 S 5 E 15.221	10- 6-67	1.80	5.1	- -	48900	3400	3340	69900	6.1	48.9
22 S 5 E 15.221	10-13-67	.70	14.0	- -	112000	7400	7310	136000	6.7	29.4
22 S 5 E 15.221	10-20-67	.50	2.7	- -	543	88	0	833	8.6	23.9
22 S 5 E 16.111	6-10-53	1.00	- - -	- -	7480	1590	1510	12600	7.0	- -
22 S 5 E 16.111	6-12-53	.20	.3	- -	329	182	0	573	7.4	- -
22 S 5 E 20.111	7-10-53	.30	9.8	- -	241	74	- - -	379	7.4	- -
22 S 5 E 29.232	9- 2-66	- - -	- - -	- -	- - -	- - -	- - -	3110	- -	26.7
22 S 5 E 29.232	10-28-66	- - -	- - -	- -	- - -	- - -	- - -	8488	- -	28.3
22 S 5 E 29.232	11-16-66	.40	3.8	- -	234	108	12	336	- -	27.2
22 S 5 E 31.424	5-20-53	.60	1.1	- -	176	82	1	235	7.0	- -
22 S 5 E 32.311A	5-11-51	.40	.8	- -	201	97	10	284	7.1	- -
22 S 5 E 32.313	5-20-53	.50	3.1	- -	194	100	16	264	7.0	- -
22 S 5 E 32.321	5-11-51	.30	.9	- -	202	97	11	287	7.2	- -
22 S 5 E 32.323	4- 6-48	.40	2.0	- -	203	92	6	268	7.1	- -
22 S 5 E 33.244	12-29-68	1.40	1.8	- -	33000	5800	576	45600	6.9	33.0
22 S 5 E 33.244	1- 3-69	.40	4.2	- -	357	137	61	567	7.7	27.5

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

DONA ANA COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
23 S 5 E 10.413	3-11-69	137-	1392	23.0	18.00	1280.0	683.0	1450	102	0	3360	13200.00
23 S 5 E 10.413	3-12-69	638-	660	28.0	4.00	27.0	1.8	47	104	0	59	20.00
23 S 5 E 10.413	3-28-69	310-	700	38.0	.56	34.0	5.6	33	127	0	48	16.00
23 S 5 E 27.142	4-25-69	1719-	1742	29.0	.09	465.0	83.0	1970	57	0	720	3540.00
23 S 5 E 27.142	4-26-69	1033-	1055	27.0	.33	22.0	0.	78	141	0	66	26.00
23 S 5 E 27.142	5-10-69	450-	554	28.0	.05	30.0	1.7	34	113	0	42	11.00
23 S 5 E 35.300	4- 4-53	-	452	58.0	0.	36.0	3.9	25	104	0	35	19.00
23 S 5 E 35.300	4- 5-53	470-	510	58.0	.08	35.0	4.2	28	104	0	42	19.00
23 S 5 E 35.300	4- 9-53	636-	660	34.0	0.	31.0	6.4	29	102	- - -	37	24.00
23 S 5 E 35.300	4-10-53	715-	744	32.0	.02	28.0	4.9	35	106	0	38	23.00
23 S 5 E 35.300	4-12-53	827-	865	32.0	.01	29.0	3.5	- - - -	107	0	59	26.00
23 S 5 E 35.300	5- 3-53	962-	1012	34.0	0.	42.0	3.8	48	94	0	59	54.00
23 S 5 E 35.300	5- 6-53	1162-	1216	32.0	0.	640.0	57.0	435	54	0	541	1550.00
23 S 5 E 36.300	4-23-36	-	181	- - -	- - -	41.0	5.3	23	86	0	68	18.00
24 S 5 E 20.340	6-27-53	520-	568	23.0	.06	16.0	5.0	146	226	- - -	66	74.00
24 S 5 E 20.340	6-28-53	685-	721	26.0	.37	12.0	3.8	- - - -	212	0	49	56.00
24 S 5 E 20.340	6-30-53	786-	826	13.0	.15	10.0	2.5	138	232	0	42	66.00
24 S 5 E 20.340	7- 1-53	842-	882	17.0	.03	13.0	4.1	124	221	0	37	60.00
24 S 5 E 20.340	7- 3-53	895-	935	14.0	.14	11.0	4.8	- - - -	241	0	48	59.00
24 S 5 E 20.340	7- 8-53	1155-	1205	16.0	.14	14.0	4.2	138	408	0	39	53.00
24 S 5 E 26.240	4- 4-53	408-	433	9.8	0.	155.0	8.3	134	31	0	71	425.00
24 S 5 E 26.240	4- 4-53	465-	505	24.0	.01	602.0	20.0	287	27	0	159	1410.00
24 S 5 E 26.240	4- 5-53	505-	568	25.0	.02	1480.0	77.0	531	22	0	201	3500.00
25 S 4 E 11.400	- -11	-	349	- - -	- - -	35.0	13.0	61	- - -	84	74	39.00
25 S 4 E 11.130	2-12-31	-	798	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	63.00
25 S 4 E 11.130	4-17-36	-	798	- - -	- - -	39.0	23.0	68	232	0	67	54.00
25 S 4 E 11.130	5-13-53	-	798	- - -	- - -	- - -	- - -	- - - -	231	0	- - -	46.00
25 S 4 E 17.444	1- 3-54	647-	690	14.0	.03	22.0	6.4	152	176	0	177	49.00
25 S 4 E 17.444	1- 6-54	818-	841	15.0	.04	26.0	6.2	97	194	0	85	32.00
25 S 4 E 17.444	1-12-54	-	610	32.0	.07	52.0	10.0	102	152	0	161	64.00
25 S 4 E 18.244	11-24-53	846-	889	25.0	.14	99.0	30.0	261	310	0	185	348.00
25 S 4 E 18.244	12- 6-53	-	763	38.0	.06	137.0	29.0	229	227	0	233	365.00
25 S 4 E 35.120	5- 4-53	485-	515	15.0	.01	32.0	7.4	123	178	0	81	93.00
25 S 4 E 35.120	5- 4-53	545-	580	28.0	0.	33.0	8.1	97	175	0	70	68.00
25 S 4 E 35.120	5- 6-53	635-	669	24.0	0.	31.0	6.6	98	171	0	91	52.00
25 S 4 E 35.120	5- 7-53	688-	721	24.0	- - -	31.0	7.1	87	174	0	69	50.00
25 S 4 E 35.120	5- 9-53	834-	868	26.0	.01	27.0	4.5	164	162	0	69	162.00
25 S 4 E 35.120	5-10-53	901-	935	16.0	0.	220.0	28.0	730	53	0	101	1450.00
25 S 4 E 35.120	5-11-53	963-	997	18.0	.01	376.0	44.0	1040	57	0	216	2280.00
25 S 4 E 35.120	5-12-53	1009-	1055	30.0	.02	578.0	88.0	1370	57	0	273	3150.00
25 S 4 E 35.120	5-23-53	-	544	30.0	.13	37.0	8.8	101	177	0	66	91.00
25 S 5 E 27.330	4-27-53	714-	747	31.0	0.	192.0	42.0	940	71	0	83	1800.00
25 S 5 E 27.330	5- 2-53	453-	463	2.2	.02	196.0	28.0	385	44	0	43	970.00
25 S 5 E 31.210	6- 2-53	494-	539	18.0	.01	14.0	3.3	107	171	2	57	47.00
25 S 5 E 31.210	6- 3-53	575-	620	30.0	.42	14.0	3.3	118	187	0	72	47.00

DONA ANA COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
23 S 5 E 10.413	3-11-69	.70	1.7	- -	26000	6000	5920	36700	7.5	25.0
23 S 5 E 10.413	3-12-69	.40	- - -	- -	239	75	0	354	8.2	26.0
23 S 5 E 10.413	3-20-69	.60	3.2	- -	240	108	4	355	8.1	25.0
23 S 5 E 27.142	4-25-69	1.20	.1	- -	6840	1500	1450	11200	8.9	32.0
23 S 5 E 27.142	4-28-69	1.10	.2	- -	298	55	0	450	7.8	30.0
23 S 5 E 27.142	5-10-69	.60	4.0	- -	207	82	0	301	7.8	27.0
23 S 5 E 35.300	4- 4-53	.60	.5	.0	230	106	21	308	7.7	- -
23 S 5 E 35.300	4- 5-53	.60	4.2	.1	246	105	- - -	324	7.6	- -
23 S 5 E 35.300	4- 9-53	.50	4.2	.2	217	104	- - -	334	7.9	- -
23 S 5 E 35.300	4-10-53	.50	4.3	.1	218	98	- - -	326	7.7	- -
23 S 5 E 35.300	4-12-53	.50	4.2	.1	256	87	- - -	388	7.8	- -
23 S 5 E 35.300	5- 3-53	.50	.4	.0	299	120	- - -	471	7.4	- -
23 S 5 E 35.300	5- 6-53	.10	1.5	.4	3288	1830	- - -	5440	7.8	- -
23 S 5 E 36.300	4-23-36	- - -	9.1	- -	207	124	- - -	- - -	- -	- -
24 S 5 E 20.340	6-27-53	8.00	1.0	.1	458	60	- - -	761	7.7	- -
24 S 5 E 20.340	6-28-53	5.00	1.5	.2	384	46	- - -	628	8.2	- -
24 S 5 E 20.340	6-30-53	.40	1.5	.2	395	36	- - -	669	8.1	- -
24 S 5 E 20.340	7- 1-53	6.00	1.0	.2	371	50	- - -	631	8.1	- -
24 S 5 E 20.340	7- 3-53	6.00	.5	.3	402	47	- - -	670	8.2	- -
24 S 5 E 20.340	7- 8-53	8.00	1.0	.2	408	52	- - -	675	8.0	- -
24 S 5 E 20.240	4- 4-53	.40	4.0	.1	823	420	- - -	1630	6.9	- -
24 S 5 E 20.240	4- 4-53	.10	1.5	.1	2520	1500	- - -	4620	6.8	- -
24 S 5 E 20.240	4- 5-53	0.	- - -	- -	5030	4010	- - -	10200	6.8	- -
25 S 4 E 11.000	- -11	- - -	- - -	- -	321	- - -	- - -	- - -	- -	- -
25 S 4 E 11.130	2-12-31	- - -	0.	- -	420	373	- - -	- - -	- -	- -
25 S 4 E 11.130	4-17-36	- - -	5.7	- -	371	192	- - -	- - -	- -	- -
25 S 4 E 11.130	5-13-53	- - -	- - -	- -	- - -	186	- - -	639	7.9	- -
25 S 4 E 17.444	1- 3-54	.50	6.8	.1	514	82	- - -	818	8.0	- -
25 S 4 E 17.444	1- 8-54	.30	4.2	.1	364	98	- - -	586	8.2	- -
25 S 4 E 17.444	1-12-54	.30	5.1	.1	503	170	- - -	772	- -	- -
25 S 4 E 18.244	11-24-53	0.	1.2	- -	1180	378	- - -	1880	7.7	- -
25 S 4 E 18.244	12- 8-53	0.	.5	.2	1140	461	- - -	1920	7.5	- -
25 S 4 E 35.120	5- 4-53	.30	.4	.2	444	110	- - -	750	7.6	- -
25 S 4 E 35.120	5- 4-53	.30	3.5	.0	394	116	- - -	657	7.9	- -
25 S 4 E 35.120	5- 6-53	.30	3.5	.1	394	104	- - -	831	7.9	- -
25 S 4 E 35.120	5- 7-53	.20	4.0	.1	358	106	- - -	581	7.8	- -
25 S 4 E 35.120	5- 9-53	.90	4.5	.1	538	86	- - -	934	8.0	- -
25 S 4 E 35.120	5-10-53	1.00	.5	.3	2570	664	- - -	4780	7.3	- -
25 S 4 E 35.120	5-11-53	.40	- - -	- -	3920	1120	- - -	6920	7.2	- -
25 S 4 E 35.120	5-12-53	.20	- - -	- -	5520	1800	- - -	9560	7.8	- -
25 S 4 E 35.120	5-23-53	.30	4.1	.2	429	120	- - -	743	7.9	- -
25 S 5 E 27.330	4-27-53	.60	1.8	.1	3120	652	- - -	5710	7.5	- -
25 S 5 E 27.330	5- 2-53	.10	3.2	.1	1650	604	- - -	3100	6.8	- -
25 S 5 E 31.210	6- 2-53	1.40	3.8	.2	342	48	- - -	596	8.4	- -
25 S 5 E 31.210	6- 3-53	1.40	8.5	.1	381	48	- - -	661	7.9	- -

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

DONA ANA COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
25 S 5 E 31.210	6- 5-53	823-	855	22.0	.53	25.0	3.3	103	222	0	74	24.00
25 S 5 E 31.210	6- 7-53	900-	953	34.0	1.30	0.6	.1	94	143	0	72	23.00
25 S 5 E 31.210	6- 8-53	1019-	1060	15.0	.02	12.0	2.2	172	219	0	144	57.00
25 S 5 E 31.210	6- 9-53	1145-	1130	36.0	.14	16.0	2.3	193	117	0	66	216.00
25 S 5 E 31.340	4-16-36	-	462	- - -	- - -	34.0	9.0	77	102	0	72	45.00
25 S 5 E 35.300	4- 3-36	-	350	- - -	- - -	30.0	4.4	37	90	0	38	39.00
25 S 5 E 36.111	4-10-53	419-	451	8.0	.02	48.0	8.7	119	72	0	63	200.00
25 S 5 E 36.111	4-11-53	493-	535	21.0	0.	150.0	21.0	160	39	0	32	510.00
25 S 5 E 36.111	4-13-53	540-	590	22.0	0.	166.0	37.0	462	44	0	28	1050.00
25 S 5 E 36.111	4-14-53	625-	667	13.0	.03	672.0	161.0	2810	50	0	252	9770.00
26 S 5 E 21.400	4-17-36	-	336	24.0	- - -	- - -	6.7	41	104	0	44	26.00
26 S 5 E 24.320	11-13-52	-	400	30.0	- - -	78.0	15.0	274	74	0	20	540.00
26 S 5 E 33.400	12-15-53	551-	605	10.0	- - -	12.0	3.5	89	135	0	55	47.00
26 S 5 E 33.400	12-16-53	706-	755	12.0	.04	72.0	14.0	212	64	0	31	422.00
26 S 5 E 33.400	12-17-53	855-	905	8.4	.03	71.0	13.0	416	104	0	90	688.00
26 S 5 E 33.400	12-27-53	-	525	28.0	.80	25.0	6.0	97	160	0	73	61.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

DONA ANA COUNTY, NEW MEXICO - Concluded

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
25 S 5 E 31.210	6- 5-53	1.30	0.	.1	364	76	- - -	588	7.6	- -
25 S 5 E 31.210	6- 7-53	.80	0.	.1	307	24	- - -	469	8.0	- -
25 S 5 E 31.210	6- 8-53	1.20	.2	.2	528	39	- - -	836	8.0	- -
25 S 5 E 31.210	6- 9-53	.90	0.	.1	649	50	- - -	1060	7.6	- -
25 S 5 E 31.340	4-16-36	- - -	6.7	- -	334	125	- - -	- - -	- -	- -
25 S 5 E 35.300	4- 3-36	- - -	7.5	- -	196	93	- - -	- - -	- -	- -
25 S 5 E 36.111	4-10-53	.60	.7	.1	584	156	- - -	915	7.4	- -
25 S 5 E 36.111	4-11-53	.30	4.7	.1	918	461	- - -	1790	7.4	- -
25 S 5 E 36.111	4-13-53	.20	4.5	.0	1790	566	- - -	1790	7.4	- -
25 S 5 E 36.111	4-14-53	.10	- - -	- -	9700	2340	- - -	16500	7.4	- -
26 S 5 E 21.400	4-17-36	- - -	7.0	- -	282	87	- - -	- - -	- -	- -
26 S 5 E 24.320	11-13-52	- - -	3.5	- -	180	256	- - -	1900	7.5	- -
26 S 5 E 33.400	12-15-53	.30	3.8	- -	308	44	- - -	502	8.0	- -
26 S 5 E 33.400	12-16-53	.10	3.2	.1	798	237	- - -	1540	7.4	- -
26 S 5 E 33.400	12-17-53	.70	.8	- -	1330	230	- - -	2410	7.6	- -
26 S 5 E 33.400	12-27-53	.70	4.5	.2	376	90	- - -	619	8.0	- -

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

LINCOLN COUNTY

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA) + POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
2 S 12 E 11.400	8- -03	-	414	- - -	- - -	357.0	74.0	46	- - -	86	1059	36.00
4 S 11 E 17.400	- -11	-	232	- - -	- - -	514.0	159.0	240	- - -	119	1992	133.00
4 S 11 E 28.400	- -11	-		- - -	- - -	569.0	200.0	223	- - -	104	1992	343.00
4 S 12 E 29.000	- -03	-		- - -	- - -	73.0	23.0	80	- - -	105	159	79.00
4 S 12 E 29.000	1- -07	-	855	- - -	- - -	66.0	34.0	83	- - -	140	179	45.00
4 S 12 E 29.300	1-11-07	-	955	36.0	- - -	66.0	34.0	82	- - -	140	180	45.00
5 S 11 E 4.400	- -11	-	150	- - -	- - -	251.0	116.0	225	- - -	164	1038	172.00
5 S 11 E 7.100	- -11	-	166	- - -	- - -	319.0	162.0	346	- - -	149	1532	266.00
6 S 9 E 1.232	10-29-51	-	172	27.0	- - -	135.0	78.0	324	388	- - -	823	130.00
5 S 9 E 2.400	10- -11	-	182	- - -	- - -	241.0	98.0	72	- - -	89	823	111.00
6 S 9 E 7.232	2-26-54	-		7.0	- - -	370.0	184.0	122	86	0	1740	41.00
6 S 9 E 19.441	2-26-54	-		20.0	- - -	604.0	164.0	82	224	0	1970	87.00
6 S 9 E 33.143	8-31-55	-		- - -	- - -	- - -	- - -	- - - -	72	0	2850	195.00
6 S 10 E 6.131	5- 8-69	-	150	19.0	- - -	122.0	74.0	401	370	- - -	892	176.00
7 S 10 E 2.000	- -11	-	128	- - -	- - -	35.0	23.0	503	- - -	193	815	188.00
7 S 10 E 25.400	- -11	-	78	- - -	- - -	262.0	53.0	101	- - -	70	715	195.00
7 S 10 E 28.200	11- -11	-	29	- - -	- - -	295.0	67.0	196	- - -	75	894	277.00
7 S 10 E 34.300	11- -11	-	60	- - -	- - -	550.0	233.0	562	- - -	89	1388	1482.00
7 S 11 E 28.100	10- -11	-		- - -	- - -	104.0	24.0	174	- - -	74	225	266.00
8 S 6 E 22.424	3-31-56	-	17	17.0	- - -	143.0	98.0	26	359	- - -	338	182.00
8 S 7 E 8.124	3-30-55	-	150	- - -	- - -	- - -	- - -	- - - -	266	- - -	1660	19.00
8 S 9 E 9.243	9-15-55	-		- - -	- - -	- - -	- - -		123	120	0	1650	88.00
8 S 9 E 19.200	11- -11	-	152	- - -	- - -	377.0	96.0	193	- - -	61	1261	244.00
8 S 9 E 25.243	5- 6-69	-		25.0	- - -	258.0	111.0	255	178	0	1018	384.00
8 S 9 E 29.414	5-18-55	-	58	- - -	- - -	- - -	- - -	- - - -	178	0	1190	448.00
8 S 9 E 34.333	9-20-55	-	75	- - -	- - -	- - -	- - -	300	179	0	1380	525.00
8 S 10 E 2.000	10-22-06	-	1125	- - -	- - -	152.0	38.0	39	- - -	149	252	77.00
8 S 10 E 2.100	- -11	-	30	- - -	- - -	670.0	220.0	454	- - -	75	1827	1108.00
8 S 10 E 2.100A	- -11	-	17	- - -	- - -	661.0	218.0	406	- - -	54	1499	1283.00
8 S 10 E 2.100B	- -11	-		- - -	- - -	689.0	295.0	776	- - -	81	2300	1483.00
8 S 10 E 2.100C	- -11	-		- - -	- - -	918.0	360.0	669	- - -	75	2174	2039.00
8 S 10 E 2.100D	- -11	-		- - -	- - -	448.0	166.0	318	- - -	54	1382	741.00
8 S 10 E 3.100	- -11	-		- - -	- - -	252.0	52.0	108	- - -	71	684	166.00
8 S 10 E 6.400	- -11	-		- - -	- - -	273.0	103.0	408	- - -	117	1333	649.00
8 S 10 E 9.100	- -11	-		- - -	- - -	164.0	49.0	115	- - -	119	396	177.00
8 S 10 E 10.100	- -11	-		- - -	- - -	153.0	41.0	68	- - -	84	397	184.00
8 S 10 E 11.100	- -11	-		- - -	- - -	219.0	54.0	86	- - -	75	621	133.00
8 S 10 E 15.100	- -11	-	49	- - -	- - -	191.0	56.0	120	- - -	72	594	185.00
8 S 10 E 19.200	- -11	-	170	- - -	- - -	197.0	91.0	194	- - -	134	844	133.00
8 S 10 E 19.300	- -11	-	163	- - -	- - -	139.0	84.0	563	- - -	288	1892	255.00
8 S 10 E 23.100	- -11	-	127	- - -	- - -	175.0	68.0	77	- - -	119	416	155.00
8 S 11 E 1.100	- -11	-	186	- - -	- - -	241.0	48.0	131	- - -	119	625	166.00
8 S 12 E 13.200	- -11	-	45	- - -	- - -	295.0	83.0	166	- - -	119	850	255.00
8 S 13 E 30.400	- -11	-		- - -	- - -	295.0	93.0	178	- - -	149	972	177.00
9 S 6 E 2.442	3-31-55	-	24	19.0	.01	145.0	115.0	45	489	- - -	516	41.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

LINCOLN COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
2 S 12 E 11.400	8- -03	- - -	- - -	- -	1684	- - -	- - -	- - -	- -	- -
4 S 11 E 17.400	- -11	- - -	- - -	- -	3647	- - -	- - -	- - -	- -	- -
4 S 11 E 28.400	- -11	- - -	- - -	- -	4290	- -	- - -	- - -	- -	- -
4 S 12 E 29.000	- -03	- - -	- - -	- -	559	- - -	- - -	- - -	- -	- -
4 S 12 E 29.000	1- -07	- - -	- - -	- -	599	- - -	- - -	- - -	- -	- -
4 S 12 E 29.300	1-11-07	- - -	- - -	- -	598	- - -	- - -	- - -	- -	- -
5 S 11 E 4.400	- -11	- - -	- - -	- -	2051	- - -	- - -	- - -	- -	- -
5 S 11 E 7.100	- -11	- - -	- - -	- -	3085	- - -	- - -	- - -	- -	- -
6 S 9 E 1.232	10-29-51	.60	3.3	- -	1710	- - -	658	2360	- -	16.7
6 S 9 E 2.400	10- -11	- - -	- - -	- -	1564	- - -	- - -	- - -	- -	- -
6 S 9 E 7.232	2-26-54	1.60	0.	- -	2510	1680	1610	2820	- -	- -
6 S 9 E 19.441	2-26-54	1.40	.1	- -	3040	2180	2000	3250	- -	- -
6 S 9 E 33.143	6-31-55	- - -	- - -	- -	- - -	2320	2260	4760	7.8	- -
6 S 10 E 6.131	5- 8-69	- - -	2.3	- -	1870	610	307	2600	7.7	16.0
7 S 10 E 2.000	- -11	- - -	- - -	- -	1690	- - -	- - -	- - -	- -	- -
7 S 10 E 25.400	- -11	- - -	- - -	- -	1526	- - -	- - -	- - -	- -	- -
7 S 10 E 29.200	11- -11	- - -	- - -	- -	2101	- - -	- - -	- - -	- -	- -
7 S 10 E 34.300	11- -11	- - -	- - -	- -	4489	- - -	- - -	- - -	- -	- -
7 S 11 E 28.100	10- -11	- - -	- - -	- -	1118	- - -	- - -	- - -	- -	- -
8 S 6 E 22.424	3-31-56	.80	.6	- -	886	727	431	1360	7.4	15.6
8 S 7 E 8.124	3-30-55	- - -	- - -	- -	2650	1890	1670	2760	7.2	17.2
8 S 9 E 9.243	9-15-55	1.50	17.0	- -	- - -	1690	1590	2870	7.3	18.9
8 S 9 E 19.200	11- -11	- - -	- - -	- -	2640	- - -	- - -	- - -	- -	- -
8 S 9 E 25.243	5- 6-69	- - -	34.0	- -	2080	1100	954	2810	7.5	18.0
8 S 9 E 29.414	5-18-55	- - -	- - -	- -	2610	1440	1290	3350	7.3	20.0
8 S 9 E 34.333	9-20-55	.30	5.7	- -	- - -	1660	1510	3860	7.2	- -
8 S 10 E 2.000	10-22-06	- - -	- - -	- -	762	- - -	- - -	- - -	- -	- -
8 S 10 E 2.100	- -11	- - -	- - -	- -	5540	- - -	- - -	- - -	- -	- -
8 S 10 E 2.100A	- -11	- - -	- - -	- -	4441	- - -	- - -	- - -	- -	- -
8 S 10 E 2.100B	- -11	- - -	- - -	- -	6112	- - -	- - -	- - -	- -	- -
8 S 10 E 2.100C	- -11	- - -	- - -	- -	6935	- - -	- - -	- - -	- -	- -
8 S 10 E 2.100D	- -11	- - -	- - -	- -	3171	- - -	- - -	- - -	- -	- -
8 S 10 E 3.100	- -11	- - -	- - -	- -	1448	- - -	- - -	- - -	- -	- -
8 S 10 E 6.400	- -11	- - -	- - -	- -	3320	- - -	- - -	- - -	- -	- -
8 S 10 E 9.100	- -11	- - -	- - -	- -	1078	- - -	- - -	- - -	- -	- -
8 S 10 E 10.100	- -11	- - -	- - -	- -	892	- - -	- - -	- - -	- -	- -
8 S 10 E 11.100	- -11	- - -	- - -	- -	1284	- - -	- - -	- - -	- -	- -
8 S 10 E 15.100	- -11	- - -	- - -	- -	1212	- - -	- - -	- - -	- -	- -
8 S 10 E 19.200	- -11	- - -	- - -	- -	1972	- - -	- - -	- - -	- -	16.7
8 S 10 E 19.300	- -11	- - -	- - -	- -	2323	- - -	- - -	- - -	- -	- -
8 S 10 E 23.100	- -11	- - -	- - -	- -	1214	- - -	- - -	- - -	- -	- -
8 S 11 E 1.100	- -11	- - -	- - -	- -	1329	- - -	- - -	- - -	- -	- -
8 S 12 E 13.200	- -11	- - -	- - -	- -	371	- - -	- - -	- - -	- -	- -
8 S 13 E 30.400	- -11	- - -	- - -	- -	2067	- - -	- - -	- - -	- -	- -
9 S 6 E 2.442	3-31-55	1.00	.4	- -	1080	835	500	1520	7.5	15.0

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

LINCOLN COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
9 S 6 E 13.000	- -13	-	30	- - -	- - -	235.0	195.0	- - - -	- - -	- - -	1285	151.00
9 S 8 E 24.221	6- 1-55	-	45	- - -	- - -	- - -	- - -	- - - -	456	- - -	561	109.00
9 S 7 E 9.411	6-29-55	-	205	- - -	- - -	- - -	- - -	- - - -	110	0	2430	163.00
9 S 7 E 25.134	3-30-49	-	200	- - -	- - -	694.0	182.0	354	128	0	1930	795.00
9 S 7 E 25.134	10-27-52	-	200	24.0	.01	668.0	152.0	339	142	0	1910	650.00
9 S 7 E 25.134	5-19-55	-	200	- - -	- - -	- - -	- - -	- - - -	135	0	1900	640.00
9 S 8 E 5.400	- -11	-	252	- - -	- - -	547.0	139.0	245	- - -	104	1771	324.00
9 S 8 E 5.421	6- 1-55	-	335	- - -	- - -	- - -	- - -	- - - -	126	0	1830	320.00
9 S 8 E 22.311	5-31-55	-	265	- - -	- - -	- - -	- - -	- - - -	175	0	2160	980.00
9 S 8 E 31.343	5-31-55	-		- - -	- - -	- - -	- - -	- - - -	97	- - -	1440	262.00
9 S 8 E 35.141	6- 1-55	-	60	- - -	- - -	- - -	- - -	- - - -	143	0	784	385.00
9 S 8 E 35.142	6- 1-55	-	90	- - -	- - -	- - -	- - -	- - - -	148	0	773	320.00
9 S 8 E 36.200	- -11	-	200	- - -	- - -	870.0	12.0	387	- - -	193	226	208.00
9 S 8 E 36.244	6- 1-55	-	135	- - -	- - -	- - -	- - -	- - - -	475	0	274	148.00
9 S 9 E 7.312	4-23-57	-	259	- - -	- - -	- - -	- - -	- - - -	210	0	1340	384.00
9 S 9 E 28.100	- -11	-	130	- - -	- - -	153.0	43.0	121	- - -	104	469	115.00
9 S 9 E 29.424	2-20-55	-	96	30.0	- - -	134.0	58.0	98	184	0	434	127.00
9 S 9 E 31.100	- -11	-	489	- - -	- - -	2.0	6.0	412	- - -	321	215	115.00
9 S 9 E 31.100A	- -11	-	965	- - -	- - -	27.0	11.0	387	- - -	268	417	146.00
9 S 9 E 31.233	9-23-55	-	95	- - -	- - -	- - -	- - -	436	243	0	1420	530.00
9 S 9 E 31.400	- -11	-	108	- - -	- - -	328.0	78.0	356	- - -	119	1012	470.00
9 S 9 E 33.300	- -11	-	80	- - -	- - -	198.0	49.0	144	- - -	104	567	169.00
10 S 7 E 10.400	- -11	-	72	- - -	- - -	547.0	164.0	564	- - -	89	1991	741.00
10 S 7 E 34.131	5-26-55	-	30	- - -	- - -	- - -	- - -	- - - -	275	- - -	2180	2210.00
10 S 8 E 18.131	6- 2-55	-		- - -	- - -	- - -	- - -	- - - -	379	- - -	2340	848.00
10 S 8 E 30.400	- -11	-		- - -	- - -	634.0	213.0	2874	- - -	30	2270	4457.00
10 S 9 E 5.123	9-20-55	-	98	- - -	- - -	- - -	- - -	165	158	0	716	280.00
10 S 9 E 5.400	- -11	-	150	- - -	- - -	355.0	136.0	353	- - -	89	1500	359.00
10 S 9 E 8.100	- -11	-	300	- - -	- - -	58.0	31.0	510	- - -	104	901	186.00
10 S 9 E 8.121	9-20-55	-		- - -	- - -	- - -	- - -	514	155	0	1030	278.00
10 S 9 E 9.100	- -11	-	171	- - -	- - -	295.0	119.0	397	- - -	74	1263	417.00
10 S 9 E 13.212	8-23-56	-	45	25.0	- - -	349.0	55.0	112	165	- - -	1010	106.00
10 S 9 E 24.412	4-17-56	-	170	26.0	- - -	474.0	65.0	238	126	- - -	1310	350.00
10 S 9 E 25.400	- -11	-		- - -	- - -	509.0	119.0	410	- - -	73	1863	421.00
10 S 9 E 34.211	8-15-56	-	235	72.0	- - -	147.0	51.0	47	122	- - -	340	153.00
10 S 10 E 4.441	1- 4-57	-	221	20.0	- - -	72.0	3.8	213	298	- - -	300	71.00
10 S 10 E 5.222	1- 4-57	-	114	39.0	- - -	318.0	71.0	175	241	- - -	917	213.00
10 S 10 E 29.414	8-27-56	-	56	40.0	- - -	266.0	59.0	95	250	- - -	746	90.00
10 S 10 E 32.334	11-27-56	-	132	14.0	- - -	139.0	26.0	44	240	- - -	284	36.00
10 S 10 E 32.334	12- 6-56	-	295	13.0	- - -	121.0	27.0	60	227	- - -	293	35.00
10 S 10 E 32.334	1- 2-57	-	300	23.0	0.	137.0	30.0	63	298	- - -	292	36.00
10 S 10 E 33.131	8-28-56	-		25.0	- - -	104.0	21.0	29	194	- - -	200	28.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

LINCOLN COUNTY - Concluded

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMOHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
9 S 6 E 13.000	- -13	- - -	- - -	- -	2396	- - -	- - -	- - -	- -	18.9
9 S 6 E 24.221	6- 1-55	- - -	- - -	- -	1370	850	476	1880	7.4	- -
9 S 7 E 9.411	6-29-55	- - -	- - -	- -	- - -	1980	1890	4300	- -	19.4
9 S 7 E 25.134	3-30-49	- - -	19.0	- -	4040	2460	2380	5160	7.5	- -
9 S 7 E 25.134	10-27-52	1.00	5.0	- -	3280	2290	2180	4730	7.2	- -
9 S 7 E 25.134	5-19-55	- - -	- - -	- -	4020	2330	2220	4690	8.1	18.3
9 S 8 E 5.400	- -11	- - -	- - -	- -	3341	- - -	- - -	- - -	- -	- -
9 S 8 E 5.421	6- 1-55	- - -	- - -	- -	3370	2090	1990	3670	7.4	20.0
9 S 8 E 22.311	5-31-55	- - -	- - -	- -	4960	2620	2480	5870	7.7	22.2
9 S 8 E 31.343	5-31-55	- - -	- - -	- -	2670	1460	1400	3150	- -	- -
9 S 8 E 35.141	6- 1-55	- - -	- - -	- -	1920	1160	1040	2600	7.9	22.8
9 S 8 E 35.142	6- 1-55	- - -	- - -	- -	1830	1060	958	2440	7.6	19.4
9 S 8 E 36.200	- -11	- - -	- - -	- -	1228	- - -	- - -	- - -	- -	- -
9 S 8 E 36.244	6- 1-55	- - -	- - -	- -	1030	188	8	1670	8.1	21.1
9 S 9 E 7.312	4-23-57	- - -	- - -	- -	- - -	1530	1368	3430	7.0	16.7
9 S 9 E 28.100	- -11	- - -	- - -	- -	1159	- - -	- - -	- - -	- -	- -
9 S 9 E 29.424	2-20-55	.30	4.3	- -	976	573	422	1440	7.4	18.3
9 S 9 E 31.100	- -11	- - -	- - -	- -	1098	- - -	- - -	- - -	- -	- -
9 S 9 E 31.100A	- -11	- - -	- - -	- -	1238	- - -	- - -	- - -	- -	- -
9 S 9 E 31.233	9-23-55	.30	2.5	- -	- - -	1480	1280	4070	7.4	25.0
9 S 9 E 31.400	- -11	- - -	- - -	- -	2636	- - -	- - -	- - -	- -	- -
9 S 9 E 33.300	- -11	- - -	- - -	- -	1314	- - -	- - -	- - -	- -	- -
10 S 7 E 10.400	- -11	- - -	- - -	- -	4216	- - -	- - -	- - -	- -	- -
10 S 7 E 34.131	5-26-55	- - -	- - -	- -	7480	3720	3490	9440	7.6	16.1
10 S 8 E 18.131	6- 2-55	- - -	- - -	- -	5260	2980	2670	6030	7.6	18.9
10 S 8 E 30.400	- -11	- - -	- - -	- -	11090	- - -	- - -	- - -	- -	- -
10 S 9 E 5.123	9-20-55	.30	20.0	- -	1650	940	810	2230	7.4	18.3
10 S 9 E 5.400	- -11	- - -	- - -	- -	3288	- - -	- - -	- - -	- -	- -
10 S 9 E 8.100	- -11	- - -	- - -	- -	1822	- - -	- - -	- - -	- -	- -
10 S 9 E 8.121	9-20-55	1.00	4.0	- -	- - -	440	353	2940	7.2	20.6
10 S 9 E 9.100	- -11	- - -	- - -	- -	2742	- - -	- - -	- - -	- -	- -
10 S 9 E 13.212	8-23-56	.60	4.6	- -	2150	1100	963	2540	7.4	16.1
10 S 9 E 24.412	4-17-56	1.10	5.1	- -	2630	1450	1350	3180	7.5	- -
10 S 9 E 25.400	- -11	- - -	- - -	- -	3893	- - -	- - -	- - -	- -	- -
10 S 9 E 34.211	8-15-56	.70	8.3	- -	969	576	416	1320	7.5	18.3
10 S 10 E 4.441	1- 4-57	.20	.1	- -	850	195	0	1250	7.4	13.3
10 S 10 E 5.222	1- 4-57	.40	15.0	- -	1970	1090	888	2460	7.4	15.0
10 S 10 E 29.414	8-27-56	.50	3.3	- -	1580	906	701	1890	7.5	16.7
10 S 10 E 32.334	11-27-56	.50	.4	- -	698	449	252	991	7.5	16.1
10 S 10 E 32.334	12- 6-56	.80	.1	- -	696	413	227	980	7.8	16.1
10 S 10 E 32.334	1- 2-57	.80	.5	- -	742	466	222	1010	7.0	16.7
10 S 10 E 33.131	8-28-56	.60	1.1	- -	554	346	187	769	7.3	16.1

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
11 S 8 E 27.400	- -11	-	85	- - -	- - -	186.0	29.0	567	- - -	59	699	700.00
11 S 9 E 22.441	7-26-56	-	153	2.2	- - -	357.0	78.0	152	274	- - -	1010	187.00
11 S 9 E 35.122	7-30-56	-	60	13.0	- - -	536.0	97.0	128	276	- - -	1360	262.00
11 S 10 E 5.112	8-15-56	-	36	14.0	- - -	189.0	39.0	50	228	- - -	488	30.00
11 S 10 E 5.121	8-14-56	-	101	24.0	- - -	148.0	33.0	51	232	- - -	347	45.00
11 S 10 E 5.332	3- 6-57	-	300	- - -	- - -	- - -	- - -	- - - -	180	- - -	853	137.00
11 S 10 E 6.333	12-29-56	-	65	- - -	- - -	- - -	- - -	- - - -	171	- - -	- - -	29.00
11 S 10 E 6.333	1-10-57	-	205	- - -	- - -	- - -	- - -	- - - -	145	- - -	284	37.00
11 S 10 E 6.333	1-18-57	-	297	- - -	- - -	- - -	- - -	- - - -	207	- - -	271	35.00
11 S 10 E 6.333	2-25-57	-	300	23.0	0.	128.0	29.0	33	198	- - -	282	37.00
11 S 10 E 6.433	2- 5-57	-	60	- - -	- - -	- - -	- - -	- - - -	185	- - -	448	42.00
11 S 10 E 6.433	2- 7-57	-	105	- - -	- - -	- - -	- - -	- - - -	170	- - -	437	62.00
11 S 10 E 6.433	3-12-57	-	300	24.0	- - -	168.0	36.0	44	176	- - -	416	60.00
11 S 10 E 7.234	2- 2-56	-	116	- - -	- - -	- - -	- - -	- - - -	256	- - -	744	91.00
11 S 10 E 7.234	2- 7-56	-	116	27.0	- - -	152.0	28.0	21	195	- - -	286	56.00
11 S 10 E 7.234A	4-27-57	-	50	47.0	- - -	260.0	51.0	26	197	- - -	622	72.00
11 S 10 E 7.234A	5-16-57	-	257	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	506	66.00
11 S 10 E 7.234A	6- 6-57	282-	386	- - -	- - -	- - -	- - -	- - - -	222	- - -	659	67.00
11 S 10 E 7.234A	8- 8-57	-	500	29.0	- - -	216.0	37.0	24	214	- - -	452	68.00
11 S 10 E 7.411	6- 9-56	-	44	35.0	- - -	294.0	52.0	24	212	- - -	629	120.00
11 S 10 E 8.311	2-15-57	-	55	- - -	- - -	- - -	- - -	- - - -	195	- - -	261	39.00
11 S 10 E 8.331	8-10-56	-	138	15.0	- - -	441.0	90.0	181	146	- - -	1130	400.00
11 S 10 E 17.422	8-10-56	-	382	22.0	- - -	445.0	124.0	239	204	- - -	1170	534.00
11 S 10 E 19.132	8- 4-56	-		20.0	- - -	468.0	74.0	97	190	- - -	1190	204.00
13 S 7 E 26.342	7-24-57	-		- - -	- - -	- - -	- - -	- - - -	42	- - -	2220	1510.00
13 S 8 E 8.400	- -11	-		- - -	- - -	656.0	237.0	442	- - -	134	2370	616.00
13 S 8 E 34.411	7-24-57	-	35	- - -	- - -	- - -	- - -	- - - -	367	- - -	3790	2530.00
13 S 9 E 20.200	- -11	-		- - -	- - -	476.0	183.0	377	- - -	89	2097	306.00
13 S 9 E 20.244	5- -54	-		- - -	- - -	- - -	- - -	- - - -	132	*2025	- - -	150.00
13 S 9 E 34.430	5-24-58	-		- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	180.00
13 S 9 E 34.430	8-26-68	-		29.0	- - -	456.0	108.0	62	147	- - -	1308	170.00
13 S 9 E 36.200	- -11	-	170	- - -	- - -	437.0	144.0	128	- - -	22	1585	197.00
13 S 9 E 36.213	5-24-58	-		- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	160.00
13 S 9 E 36.233	2- -54	-	268	23.0	- - -	457.0	128.0	49	163	- - -	1360	155.00
14 S 7 E 4.234	7-24-57	-	28	- - -	- - -	- - -	- - -	- - - -	296	- - -	5720	7310.00
14 S 8 E 13.100	- -11	-	40	- - -	- - -	547.0	251.0	526	- - -	60	2590	523.00
14 S 9 E 7.300	- -11	-	188	- - -	- - -	612.0	278.0	722	- - -	104	2792	807.00
14 S 9 E 8.400	- -11	-	56	- - -	- - -	383.0	175.0	261	- - -	104	1545	328.00
14 S 9 E 9.400	- -11	-	40	- - -	- - -	569.0	179.0	129	- - -	97	1813	279.00
14 S 9 E 14.200	- -11	-		- - -	- - -	273.0	123.0	173	- - -	119	1044	199.00
14 S 9 E 19.400	- -11	-		- - -	- - -	306.0	120.0	101	- - -	104	949	155.00
14 S 9 E 24.200	- -50	-	303	- - -	- - -	462.0	68.0	- - - -	256	- - -	788	367.00
14 S 9 E 24.343	5- -54	-	232	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	375.00
14 S 9 E 26.412A	2- 4-69	-	200	19.0	- - -	620.0	215.0	325	248	- - -	1980	600.00
14 S 9 E 26.442A	3-24-69	-	1300	16.0	- - -	330.0	79.0	432	86	0	1840	72.00

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
11 S 8 E 27.488	- -11	- - -	- - -	- -	2487	- - -	- - -	- - -	- -	- -
11 S 9 E 24.441	7-26-56	.48	.8	- -	2020	1210	986	2470	6.9	20.6
11 S 9 E 35.122	7-30-56	7.88	1.2	- -	2530	1740	- - -	3070	7.1	21.1
11 S 10 E 5.112	8-15-56	.50	1.3	- -	1010	632	445	1280	7.6	16.7
11 S 10 E 5.121	8-14-56	.50	.9	- -	840	505	315	1110	7.4	18.9
11 S 10 E 5.332	3- 6-57	- - -	- - -	- -	- - -	940	842	2060	7.6	17.8
11 S 10 E 6.333	12-29-56	- - -	- - -	- -	- - -	376	236	792	7.4	- -
11 S 10 E 6.333	1-10-57	- - -	- - -	- -	- - -	362	244	895	7.4	16.7
11 S 10 E 6.333	1-10-57	- - -	- - -	- -	- - -	284	114	940	6.9	18.3
11 S 10 E 6.333	2-25-57	.68	.6	- -	675	438	276	924	7.2	17.2
11 S 10 E 6.433	2- 5-57	- - -	- - -	- -	- - -	594	442	1230	7.6	- -
11 S 10 E 6.433	2- 7-57	- - -	- - -	- -	- - -	566	446	1230	7.6	17.2
11 S 10 E 6.433	3-12-57	.48	1.5	- -	915	567	423	1190	7.4	17.8
11 S 10 E 7.234	2- 2-56	- - -	- - -	- -	- - -	1040	838	1790	7.1	- -
11 S 10 E 7.234	2- 7-56	.88	1.6	- -	703	494	334	983	7.4	16.7
11 S 10 E 7.234A	4-27-57	.50	1.7	- -	1210	858	696	1530	7.6	- -
11 S 10 E 7.234A	5-16-57	- - -	- - -	- -	- - -	- - -	- - -	1370	- -	18.3
11 S 10 E 7.234A	6- 6-57	- - -	- - -	- -	- - -	845	663	1600	7.5	- -
11 S 10 E 7.234A	8- 8-57	.58	.9	- -	1000	691	516	1280	7.3	17.2
11 S 10 E 7.411	8- 9-56	.50	.4	- -	1350	948	774	1660	7.5	19.4
11 S 10 E 8.311	2-15-57	- - -	- - -	- -	- - -	444	284	896	7.4	17.2
11 S 10 E 8.331	8-10-56	1.28	.8	- -	2540	1470	1350	3090	7.2	23.9
11 S 10 E 17.422	8-10-56	.48	1.9	- -	2930	1620	1450	3630	7.3	20.0
11 S 10 E 19.132	8- 4-56	.28	1.2	- -	2260	1470	1320	2600	7.4	19.4
13 S 7 E 20.342	7-24-57	- - -	- - -	- -	- - -	2680	2570	7510	7.2	- -
13 S 8 E 8.488	- -11	- - -	- - -	- -	4856	- - -	- - -	- - -	- -	- -
13 S 8 E 34.411	7-24-57	- - -	- - -	- -	- - -	4580	4280	11900	7.6	- -
13 S 9 E 24.288	- -11	- - -	- - -	- -	3976	- - -	- - -	- - -	- -	- -
13 S 9 E 28.244	5- -54	- - -	- - -	- -	- - -	- - -	- - -	2610	- -	22.5
13 S 9 E 34.430	5-24-58	- - -	- - -	- -	- - -	- - -	- - -	2200	- -	- -
13 S 9 E 34.438	8-26-68	- - -	1.8	- -	2288	1580	1460	2710	7.5	- -
13 S 9 E 36.288	- -11	- - -	- - -	- -	2637	- - -	- - -	- - -	- -	- -
13 S 9 E 36.213	5-24-58	- - -	- - -	- -	- - -	- - -	- - -	2100	- -	- -
13 S 9 E 36.233	2- -54	.88	3.1	- -	2690	- - -	1670	3560	7.1	23.3
14 S 7 E 4.234	7-24-57	- - -	- - -	- -	- - -	7190	6950	25100	7.3	- -
14 S 8 E 13.188	- -11	- - -	- - -	- -	4870	- - -	- - -	- - -	- -	- -
14 S 9 E 7.388	- -11	- - -	- - -	- -	5508	- - -	- - -	- - -	- -	- -
14 S 9 E 8.488	- -11	- - -	- - -	- -	3201	- - -	- - -	- - -	- -	- -
14 S 9 E 9.488	- -11	- - -	- - -	- -	3262	- - -	- - -	- - -	- -	- -
14 S 9 E 14.288	- -11	- - -	- - -	- -	2164	- - -	- - -	- - -	- -	- -
14 S 9 E 19.488	- -11	- - -	- - -	- -	2236	- - -	- - -	- - -	- -	- -
14 S 9 E 24.288	- -58	- - -	- - -	- -	1994	- - -	- - -	- - -	- -	- -
14 S 9 E 24.343	5- -54	- - -	- - -	- -	- - -	- - -	- - -	3230	- -	17.8
14 S 9 E 26.412A	2- 4-69	- - -	34.8	.2	3920	2430	2230	4680	7.5	17.8
14 S 9 E 26.442A	3-24-69	- - -	1.7	.2	2010	1150	1080	3310	7.2	24.0

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
14 S 9 E 26.442B	12- 2-63	-	200	- - -	- - -	- - -	- - -	374	58	- - -	1630	177.00
14 S 9 E 28.200	- -11	-	35	- - -	- - -	309.0	129.0	157	- - -	134	1039	239.00
14 S 9 E 35.344	6-13-55	-	416	- - -	- - -	- - -	- - -	- - - -	187	- - -	1250	250.00
14 S 9 E 35.422	6-13-55	-		- - -	- - -	- - -	- - -	- - - -	167	- - -	988	122.00
14 S 9 E 35.442	6-13-55	-		- - -	- - -	- - -	- - -	- - - -	198	- - -	1020	202.00
14 S 9 E 36.212	6-17-55	-		- - -	- - -	- - -	- - -	- - - -	263	- - -	1280	216.00
14 S 10 E 18.444	5-26-55	-	327	- - -	- - -	- - -	- - -	- - - -	205	- - -	1420	298.00
14 S 10 E 19.230	8-23-56	-	1440	- - -	- - -	- - -	- - -	- - - -	143	- - -	1438	105.00
14 S 10 E 31.144	9-25-57	-	230	- - -	- - -	- - -	- - -	193	250	- - -	1750	380.00
15 S 8 E 1.100	- -11	-	48	- - -	- - -	295.0	186.0	141	- - -	184	984	217.00
15 S 9 E 1.400	- -11	-		- - -	- - -	241.0	97.0	143	- - -	184	795	220.00
15 S 9 E 6.200	- -11	-	32	- - -	- - -	327.0	183.0	121	- - -	89	1055	186.00
15 S 9 E 12.400	- -11	-		- - -	- - -	350.0	127.0	645	- - -	184	1632	656.00
15 S 9 E 24.242A	4-20-55	-	150	- - -	- - -	- - -	- - -	- - - -	205	- - -	1230	460.00
15 S 9 E 24.300	- -11	-	64	- - -	- - -	393.0	222.0	384	- - -	164	1608	595.00
15 S 9 E 24.400	- -11	-	140	- - -	- - -	295.0	67.0	423	- - -	111	1020	479.00
15 S 10 E 7.200	- -11	-		- - -	- - -	426.0	173.0	452	- - -	134	1604	616.00
15 S 10 E 7.400	- -50	-	225	- - -	- - -	421.0	68.0	- - - -	185	- - -	1113	338.00
15 S 10 E 8.422	4- 4-66	-	348	- - -	- - -	- - -	- - -	301	238	- - -	1230	710.00
15 S 10 E 9.300	- -11	-	125	- - -	- - -	437.0	96.0	658	- - -	111	1602	683.00
15 S 10 E 26.300	- -50	-	330	- - -	- - -	489.0	61.0	- - - -	344	- - -	1220	360.00
15 S 10 E 29.120	1-17-54	-	407	- - -	- - -	196.0	77.0	175	227	- - -	624	245.00
15 S 10 E 31.100	- -11	-	139	- - -	- - -	219.0	183.0	41	- - -	185	603	417.00
15 S 10 E 36.111	6- -65	-		- - -	0.	184.0	61.0	- - - -	208	0	441	207.00
16 S 8 E 13.442	5-19-56	-	402	45.0	.01	248.0	96.0	195	146	8	671	289.00
16 S 8 E 17.132	4- 4-56	-	60	52.0	- - -	972.0	352.0	975	72	- - -	1970	2750.00
16 S 8 E 17.132	4- 7-56	22-	84	56.0	- - -	953.0	389.0	797	68	- - -	1880	2450.00
16 S 8 E 17.132	8-31-56	-	78	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	2620.00
16 S 8 E 29.121	8-31-56	-	87	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	2230.00
16 S 8 E 29.311	8-31-56	-	210	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	2710.00
16 S 9 E 3.400	- -50	-		- - -	- - -	284.0	10.0	- - - -	232	- - -	461	182.00
16 S 9 E 3.422	6-25-54	-	200	- - -	- - -	- - -	- - -	135	250	- - -	425	192.00
16 S 9 E 4.441	7- 5-56	-	412	- - -	- - -	141.0	50.0	146	205	- - -	415	192.00
16 S 9 E 5.200	- -11	-	32	- - -	- - -	142.0	66.0	174	- - -	149	516	160.00
16 S 9 E 6.212	3- 9-55	-	212	- - -	- - -	- - -	- - -	- - - -	248	- - -	551	272.00
16 S 9 E 6.400	- -11	-	17	- - -	- - -	248.0	88.0	158	- - -	119	782	244.00
16 S 9 E 8.140	8-23-56	-	418	- - -	- - -	208.0	75.0	188	274	- - -	644	248.00
16 S 9 E 9.300	- -11	-		- - -	- - -	131.0	81.0	381	- - -	164	873	217.00
16 S 9 E 12.200	- -11	-		- - -	- - -	197.0	66.0	187	- - -	134	498	186.00
16 S 9 E 13.320	4-18-38	-	80	- - -	- - -	173.0	62.0	120	283	- - -	458	174.00
16 S 9 E 14.100	- -11	-	95	- - -	- - -	184.0	64.0	121	- - -	134	488	186.00
16 S 9 E 15.400	- -11	-		- - -	- - -	208.0	94.0	248	- - -	134	813	266.00
16 S 9 E 17.400	- -11	-		- - -	- - -	317.0	119.0	277	- - -	111	1071	412.00
16 S 9 E 23.100	- -11	-	68	- - -	- - -	131.0	119.0	382	- - -	134	870	368.00
16 S 9 E 23.100A	- -11	-	161	- - -	- - -	298.0	167.0	438	- - -	156	1189	669.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMOHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
14 S 9 E 26.442B	12- 2-63	- - -	- - -	- -	2240	- - -	- - -	3500	7.9	- -
14 S 9 E 28.200	- -11	- - -	- - -	- -	2250	- - -	- - -	- - -	- -	- -
14 S 9 E 35.344	6-13-55	- - -	- - -	- -	- - -	- - -	1520	2900	7.1	18.9
14 S 9 E 35.422	6-13-55	- - -	- - -	- -	- - -	- - -	1000	2220	7.2	20.6
14 S 9 E 35.442	6-13-55	- - -	- - -	- -	- - -	1270	1110	2450	7.3	20.6
14 S 9 E 36.212	6-17-55	- - -	- - -	- -	- - -	- - -	1500	1280	7.1	17.2
14 S 10 E 18.444	5-26-55	- - -	- - -	- -	- - -	1830	1660	3190	7.1	- -
14 S 10 E 19.230	8-23-56	- - -	- - -	- -	- - -	990	873	2220	7.3	- -
14 S 10 E 31.144	9-25-57	- - -	- - -	- -	- - -	2030	1820	3630	- -	15.0
15 S 8 E 1.100	- -11	- - -	- - -	- -	2283	- - -	- - -	- - -	- -	- -
15 S 9 E 1.400	- -11	- - -	- - -	- -	2520	- - -	- - -	- - -	- -	- -
15 S 9 E 6.200	- -11	- - -	- - -	- -	2204	- - -	- - -	- - -	- -	- -
15 S 9 E 12.400	- -11	- - -	- - -	- -	3827	- - -	- - -	- - -	- -	- -
15 S 9 E 24.242A	4-28-55	- - -	- - -	- -	- - -	1580	1410	3450	7.1	- -
15 S 9 E 24.300	- -11	- - -	- - -	- -	3924	- - -	- - -	- - -	- -	- -
15 S 9 E 24.400	- -11	- - -	- - -	- -	2632	- - -	- - -	- - -	- -	- -
15 S 10 E 7.200	- -11	- - -	- - -	- -	3624	- - -	- - -	- - -	- -	- -
15 S 10 E 7.400	- -50	- - -	- - -	- -	2335	- - -	- - -	- - -	- -	- -
15 S 10 E 8.422	4- 4-66	- - -	- - -	- -	3200	- - -	- - -	5000	7.9	- -
15 S 10 E 9.300	- -11	- - -	- - -	- -	4267	- - -	- - -	- - -	- -	- -
15 S 10 E 20.300	- -50	- - -	- - -	- -	2758	- - -	- - -	- - -	- -	- -
15 S 10 E 29.120	1-17-54	- - -	- - -	- -	1430	806	620	2090	7.8	- -
15 S 10 E 31.100	- -11	- - -	- - -	- -	1883	- - -	- - -	- - -	- -	- -
15 S 10 E 36.111	6- -65	.45	.5	- -	1590	710	- - -	- - -	7.2	- -
16 S 8 E 13.442	5-19-56	.80	2.6	- -	1820	1010	894	2550	7.2	20.8
16 S 8 E 17.132	4- 4-56	1.70	- - -	- -	7110	3870	3810	10500	7.2	- -
16 S 8 E 17.132	4- 7-56	1.30	- - -	- -	6400	3650	3600	9440	7.2	18.9
16 S 8 E 17.132	8-31-56	- - -	- - -	- -	- - -	- - -	- - -	10100	- -	18.3
16 S 8 E 29.121	8-31-56	- - -	- - -	- -	- - -	- - -	- - -	9460	- -	17.8
16 S 8 E 29.311	8-31-56	- - -	- - -	- -	- - -	- - -	- - -	11900	- -	19.4
16 S 9 E 3.400	- -50	- - -	- - -	- -	1262	- - -	- - -	- - -	- -	- -
16 S 9 E 3.422	6-25-54	- - -	- - -	- -	- - -	626	421	1720	- -	- -
16 S 9 E 4.441	7- 5-56	- - -	- - -	- -	1060	558	390	1640	7.4	20.6
16 S 9 E 5.200	- -11	- - -	- - -	- -	1324	- - -	- - -	- - -	- -	- -
16 S 9 E 6.212	3- 9-55	- - -	- - -	- -	- - -	780	577	2110	- -	- -
16 S 9 E 6.400	- -11	- - -	- - -	- -	1670	- - -	- - -	- - -	- -	- -
16 S 9 E 8.140	8-23-56	- - -	- - -	- -	1510	828	603	2190	7.5	- -
16 S 9 E 9.300	- -11	- - -	- - -	- -	1847	- - -	- - -	- - -	- -	- -
16 S 9 E 12.200	- -11	- - -	- - -	- -	1316	- - -	- - -	- - -	- -	- -
16 S 9 E 13.320	4-18-50	- - -	1.4	- -	1120	686	454	1700	7.9	- -
16 S 9 E 14.100	- -11	- - -	- - -	- -	1777	- - -	- - -	- - -	- -	- -
16 S 9 E 16.400	- -11	- - -	- - -	- -	1990	- - -	- - -	- - -	- -	- -
16 S 9 E 17.400	- -11	- - -	- - -	- -	2493	- - -	- - -	- - -	- -	- -
16 S 9 E 23.100	- -11	- - -	- - -	- -	2168	- - -	- - -	- - -	- -	- -
16 S 9 E 23.100A	- -11	- - -	- - -	- -	3060	- - -	- - -	- - -	- -	- -

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
16 S 9 E 25.100	- -11	-	60	- - -	- - -	437.0	219.0	495	- - -	156	1250	1072.00
16 S 9 E 25.200	- -11	-	186	- - -	- - -	197.0	90.0	176	- - -	119	639	270.00
16 S 9 E 25.200A	- -50	-	190	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	- - - -
16 S 9 E 25.220	4- -47	-	190	- - -	- - -	566.0	350.0	1500	354	- - -	- - -	435.00
16 S 9 E 25.300	- -11	-	95	- - -	- - -	642.0	139.0	552	- - -	150	2520	357.00
16 S 9 E 26.200	1-23-06	-	1004	14.0	- - -	94.0	86.0	201	- - -	54	1796	226.00
16 S 9 E 26.200	9- -11	-	1004	- - -	- - -	598.0	86.0	201	110	- - -	1801	210.00
16 S 9 E 26.300	- -11	-	40	- - -	- - -	407.0	347.0	1118	- - -	249	2745	1179.00
16 S 9 E 26.300A	- -11	-	80	- - -	- - -	340.0	240.0	410	- - -	- - -	1240	700.00
16 S 9 E 26.332	9- -68	-	200	18.0	- - -	343.0	152.0	286	232	0	860	718.00
16 S 9 E 32.100	- -11	-		- - -	- - -	476.0	290.0	1212	- - -	256	2405	1483.00
16 S 9 E 33.300	- -11	-		- - -	- - -	215.0	117.0	248	- - -	98	916	315.00
16 S 9 E 35.100	- -11	-	32	- - -	- - -	656.0	201.0	2198	- - -	312	2578	2858.00
16 S 9 E 35.200	- -11	-	200	- - -	- - -	257.0	107.0	257	- - -	119	712	496.00
16 S 10 E 5.133	5-26-55	-	240	- - -	- - -	- - -	- - -	- - - -	243	- - -	550	230.00
16 S 10 E 5.232	6- -65	-		- - -	.14	184.0	68.0	- - - -	192	0	554	194.00
16 S 10 E 5.241	6- -65	-		- - -	0.	176.0	68.0	- - - -	202	0	500	199.00
16 S 10 E 5.244	6- -65	-		- - -	4.30	194.0	123.0	- - - -	156	0	808	314.00
16 S 10 E 5.313	12-11-68	-	366	9.5	- - -	220.0	61.0	139	230	0	580	220.00
16 S 10 E 5.342	5-26-55	-	270	- - -	- - -	- - -	- - -	- - - -	247	- - -	473	200.00
16 S 10 E 7.223	7-21-54	-		- - -	- - -	- - -	- - -	- - - -	266	- - -	570	196.00
16 S 10 E 7.400	- -11	-	81	- - -	- - -	111.0	63.0	426	- - -	104	876	266.00
16 S 10 E 7.400A	- -11	-	74	- - -	- - -	252.0	165.0	264	- - -	231	1117	240.00
16 S 10 E 8.344	3-21-55	-		- - -	- - -	- - -	- - -	- - - -	155	- - -	2560	295.00
16 S 10 E 18.231	5-14-54	-		- - -	- - -	- - -	- - -	341	251	- - -	1550	455.00
16 S 10 E 18.241	8- 2-45	-		23.0	- - -	632.0	283.0	- - - -	54	- - -	1541	1400.00
16 S 10 E 19.200	- -11	-		- - -	- - -	383.0	225.0	476	- - -	149	1575	731.00
16 S 10 E 29.243	- -45	-	300	27.0	- - -	229.0	72.0	- - - -	230	- - -	660	175.00
16 S 10 E 29.300	- -50	-		- - -	- - -	302.0	151.0	- - - -	184	- - -	1190	280.00
16 S 10 E 30.422	5-19-55	-	270	- - -	- - -	- - -	- - -	- - - -	199	- - -	1760	810.00
16 S 10 E 30.432	7-27-54	-	240	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	1630	1120.00
16 S 10 E 31.100	- -11	-		- - -	- - -	83.0	59.0	103	- - -	45	363	160.00
16 S 10 E 32.122	12- -47	-	142	- - -	- - -	302.0	151.0	197	184	- - -	1190	280.00
16 S 10 E 33.340	6- -45	-	300	41.0	- - -	88.0	54.0	- - - -	202	- - -	362	46.00
17 S 7 E 23.000	- -11	-	10	- - -	- - -	558.0	214.0	322	- - -	47	2329	336.00
17 S 7 E 23.421	4- -54	-		- - -	- - -	- - -	- - -	224	183	- - -	1970	224.00
17 S 8 E 13.231	3- 1-49	-	110	- - -	- - -	965.0	3360.0	12600	208	- - -	9280	24000.00
17 S 8 E 13.311	6- -45	-	160	327.0	- - -	3070.0	1715.0	9900	- - -	- - -	1940	15000.00
17 S 9 E 1.112	7-21-54	-	145	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	1260	356.00
17 S 9 E 1.141	7-21-54	-		- - -	- - -	- - -	- - -	- - - -	- - -	- - -	1670	720.00
17 S 9 E 1.311	- -11	-	58	- - -	- - -	426.0	307.0	802	363	- - -	2680	878.00
17 S 9 E 1.443	- -11	-	104	- - -	- - -	262.0	137.0	233	104	- - -	1194	221.00
17 S 9 E 2.111	7-22-54	-	132	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	1180	432.00
17 S 9 E 2.300	- -11	-	80	- - -	- - -	316.0	149.0	470	- - -	134	1472	465.00
17 S 9 E 3.100	- -11	-	65	- - -	- - -	252.0	80.0	339	- - -	104	1111	288.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
15 S 9 E 25.100	- -11	- - -	- - -	- -	4241	- - -	- - -	- - -	- -	- -
16 S 9 E 25.200	- -11	- - -	- - -	- -	1680	- - -	- - -	- - -	- -	- -
16 S 9 E 25.200A	- -50	- - -	- - -	- -	8030	2850	- - -	- - -	- -	- -
16 S 9 E 25.220	4- -47	- - -	- - -	- -	- - -	2850	2560	5470	- -	- -
16 S 9 E 25.300	- -11	- - -	- - -	- -	5540	- - -	- - -	- - -	- -	- -
16 S 9 E 26.200	1-29-06	- - -	- - -	- -	2502	- - -	- - -	- - -	- -	- -
16 S 9 E 26.200	9- -11	- - -	- - -	- -	3049	- - -	- - -	- - -	- -	- -
16 S 9 E 26.300	- -11	- - -	- - -	- -	6660	- - -	- - -	- - -	- -	- -
16 S 9 E 26.300A	- -11	- - -	- - -	- -	- - -	- - -	- - -	- - -	- -	- -
16 S 9 E 26.332	9- -68	- - -	4.7	- -	2500	1480	1290	3720	7.2	20.0
16 S 9 E 32.100	- -11	- - -	- - -	- -	6464	- - -	- - -	- - -	- -	- -
16 S 9 E 33.300	- -11	- - -	- - -	- -	3360	- - -	- - -	- - -	- -	- -
16 S 9 E 35.100	- -11	- - -	- - -	- -	9727	- - -	- - -	- - -	- -	- -
16 S 9 E 35.200	- -11	- - -	- - -	- -	2240	- - -	- - -	- - -	- -	- -
16 S 10 E 5.133	5-26-55	- - -	- - -	- -	- - -	825	626	1930	7.2	- -
16 S 10 E 5.232	6- -65	.50	1.1	- -	1515	740	- - -	- - -	7.1	- -
16 S 10 E 5.241	6- -65	.45	1.2	- -	1463	720	- - -	- - -	7.1	- -
16 S 10 E 5.244	6- -65	.70	1.1	- -	2280	990	- - -	- - -	7.4	- -
16 S 10 E 5.313	12-11-68	- - -	.1	.1	1340	800	612	1960	7.6	- -
16 S 10 E 5.342	5-26-55	- - -	- - -	- -	- - -	790	588	1750	7.2	- -
16 S 10 E 7.223	7-21-54	- - -	- - -	- -	1370	- - -	- - -	1910	7.2	- -
16 S 10 E 7.400	- -11	- - -	- - -	- -	2034	- - -	- - -	- - -	- -	- -
16 S 10 E 7.400A	- -11	- - -	- - -	- -	2620	- - -	- - -	- - -	- -	- -
16 S 10 E 8.344	3-21-55	- - -	- - -	- -	- - -	2550	2420	4680	- -	- -
16 S 10 E 18.231	5-14-54	- - -	- - -	- -	- - -	1720	1510	3940	- -	- -
16 S 10 E 18.241	8- 2-45	- - -	390.0	- -	4880	- - -	- - -	- - -	- -	- -
16 S 10 E 19.200	- -11	- - -	- - -	- -	4220	- - -	- - -	- - -	- -	- -
16 S 10 E 29.243	- -45	- - -	- - -	- -	1516	871	684	- - -	7.3	- -
16 S 10 E 29.300	- -50	- - -	- - -	- -	2230	1370	- - -	- - -	- -	- -
16 S 10 E 30.422	5-19-55	- - -	- - -	- -	- - -	2400	2240	- - -	7.0	- -
16 S 10 E 30.432	7-27-54	- - -	- - -	- -	4740	- - -	- - -	5760	- -	- -
16 S 10 E 31.100	- -11	- - -	- - -	- -	880	- - -	- - -	- - -	- -	- -
16 S 10 E 32.122	12- -47	.40	20.0	- -	2230	1370	1220	2960	- -	- -
16 S 10 E 33.340	6- -45	- - -	- - -	- -	655	410	242	- - -	- -	- -
17 S 7 E 23.000	- -11	- - -	- - -	- -	4196	- - -	- - -	- - -	- -	- -
17 S 7 E 23.421	4- -54	- - -	- - -	- -	- - -	2030	1880	3710	- -	- -
17 S 8 E 13.231	3- 1-49	- - -	- - -	- -	50300	16200	16000	61700	6.7	- -
17 S 8 E 13.311	6- -45	- - -	- - -	- -	32000	14500	14400	- - -	7.6	- -
17 S 9 E 1.112	7-21-54	- - -	- - -	- -	2620	- - -	- - -	3310	- -	- -
17 S 9 E 1.141	7-21-54	- - -	- - -	- -	3900	- - -	- - -	4930	- -	- -
17 S 9 E 1.311	- -11	- - -	- - -	- -	5660	- - -	- - -	- - -	- -	- -
17 S 9 E 1.440	- -11	- - -	- - -	- -	2516	- - -	- - -	- - -	- -	- -
17 S 9 E 2.111	7-22-54	- - -	- - -	- -	2640	- - -	- - -	3410	- -	- -
17 S 9 E 2.300	- -11	- - -	- - -	- -	3288	- - -	- - -	- - -	- -	- -
17 S 9 E 3.100	- -11	- - -	- - -	- -	2533	- - -	- - -	- - -	- -	- -

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA) + POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
17 S 9 E 3.400	- -11	-	135	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	- - - -
17 S 9 E 4.300	- -11	-	133	- - -	- - -	252.0	126.0	331	- - -	119	915	510.00
17 S 9 E 5.122	4-15-54	-	98	- - -	- - -	- - -	- - -	600	264	- - -	1360	910.00
17 S 9 E 5.200	- -11	-	61	- - -	- - -	470.0	371.0	1211	- - -	37	2580	1897.00
17 S 9 E 8.244	4-15-54	-		- - -	- - -	- - -	- - -	341	95	- - -	2020	490.00
17 S 9 E 8.400	- -11	-	100	- - -	- - -	521.0	165.0	517	- - -	53	2057	620.00
17 S 9 E 10.000	- -11	-	32	- - -	- - -	413.0	223.0	365	- - -	102	1577	665.00
17 S 9 E 12.422	7-20-54	-	200	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	774	196.00
17 S 9 E 12.422	5-18-55	-	270	- - -	- - -	- - -	- - -	- - - -	203	- - -	814	215.00
17 S 9 E 12.433	10-16-54	-	163	- - -	- - -	- - -	- - -	109	214	- - -	700	140.00
17 S 9 E 13.244	12-23-54	168-	310	16.0	- - -	131.0	63.0	95	176	0	487	96.00
17 S 9 E 13.244	12-24-54	-	310	16.0	- - -	131.0	63.0	95	176	- - -	487	96.00
17 S 9 E 13.244	12-24-54	95-	120	14.0	- - -	117.0	61.0	94	130	7	507	68.00
17 S 9 E 13.400	- -11	-	85	- - -	- - -	114.0	61.0	36	- - -	109	340	55.00
17 S 9 E 14.422	4- 7-54	-		- - -	- - -	- - -	- - -	95	205	- - -	652	141.00
17 S 9 E 15.240	- -11	-	62	- - -	- - -	755.0	750.0	1482	302	- - -	3841	2841.00
17 S 9 E 23.310	- -11	-	85	- - -	- - -	241.0	120.0	201	213	- - -	976	244.00
17 S 9 E 23.310A	- -11	-	50	- - -	- - -	525.0	184.0	392	343	- - -	1949	439.00
17 S 9 E 23.333	10-19-54	107-	208	- - -	- - -	- - -	- - -	- - - -	244	- - -	2000	545.00
17 S 9 E 23.333	10-20-54	38-	107	- - -	- - -	- - -	- - -	- - - -	376	- - -	- - -	4470.00
17 S 9 E 23.431	10- 8-54	147-	308	- - -	- - -	- - -	- - -	- - - -	155	0	700	110.00
17 S 9 E 23.431	10- 9-54	-	300	15.0	- - -	176.0	69.0	126	155	- - -	686	110.00
17 S 9 E 23.431	10- 9-54	45-	51	- - -	- - -	- - -	- - -	- - - -	350	0	1000	161.00
17 S 9 E 24.142	11-29-54	143-	312	- - -	- - -	- - -	- - -	- - - -	192	0	375	120.00
17 S 9 E 24.142	11-29-54	-	312	20.0	- - -	141.0	63.0	86	192	- - -	446	120.00
17 S 9 E 24.142	11-30-54	65-	80	- - -	- - -	- - -	- - -	- - - -	222	0	350	113.00
17 S 9 E 24.222	12- 2-54	-	314	15.0	- - -	100.0	40.0	60	242	- - -	248	45.00
17 S 9 E 24.222	12- 2-54	149-	314	- - -	- - -	- - -	- - -	- - - -	198	0	250	54.00
17 S 9 E 24.222	12- 3-54	80-	105	- - -	- - -	- - -	- - -	- - - -	242	0	180	45.00
17 S 9 E 24.342	5-16-55	-	231	20.0	- - -	99.0	46.0	33	218	- - -	260	41.00
17 S 9 E 24.342	4-17-61	-	231	20.0	.03	106.0	43.0	44	217	0	279	47.00
17 S 9 E 24.342	2- 7-63	-	231	- - -	0.	108.0	39.0	40	218	0	258	46.00
17 S 9 E 24.342	9-24-66	-	231	21.0	0.	104.0	43.0	38	220	0	259	49.00
17 S 9 E 24.343	4-30-55	-	255	24.0	- -	109.0	63.0	21	212	- - -	308	56.00
17 S 9 E 24.343	4-17-61	-	255	22.0	0.	112.0	41.0	47	214	0	290	51.00
17 S 9 E 24.343	2- 6-63	-	255	22.0	0.	115.0	41.0	- - - -	210	0	293	52.00
17 S 9 E 24.343	9-17-66	-	255	22.0	0.	108.0	46.0	45	212	0	289	56.00
17 S 9 E 25.111	4-14-54	-	73	- - -	- - -	- - -	- - -	48	242	- - -	316	53.00
17 S 9 E 25.112	5- -53	-	253	- - -	- - -	185.0	100.0	- - - -	- - -	- - -	360	86.00
17 S 9 E 25.123	12- 8-54	65-	83	- - -	- - -	- - -	- - -	- - - -	238	0	300	50.00
17 S 9 E 25.123	12- 9-54	-	312	21.0	- - -	105.0	47.0	66	185	- - -	336	65.00
17 S 9 E 25.123	12- 9-54	149-	312	- - -	- - -	- - -	- - -	- - - -	185	0	350	65.00
17 S 9 E 25.132	6- -53	-	250	- - -	- - -	162.0	88.0	- - - -	- - -	- - -	326	68.00
17 S 9 E 25.200	- -11	-		- - -	- - -	186.0	86.0	111	- - -	128	481	244.00
17 S 9 E 25.212	5-25-55	-	236	19.0	- - -	89.0	47.0	15	217	- - -	213	33.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
17 S 9 E 3.400	- -11	- - -	- - -	- -	2584	- - -	- - -	- - -	- -	- -
17 S 9 E 4.300	- -11	- - -	- - -	- -	2476	- - -	- - -	- - -	- -	- -
17 S 9 E 5.122	4-15-54	- - -	- - -	- -	- - -	1610	1390	5010	- -	- -
17 S 9 E 5.200	- -11	- - -	- - -	- -	7280	- - -	- - -	- - -	- -	- -
17 S 9 E 8.244	4-15-54	- - -	- - -	- -	- - -	2130	2050	4370	- -	- -
17 S 9 E 8.400	- -11	- - -	- - -	- -	4740	- - -	- - -	- - -	- -	- -
17 S 9 E 10.000	- -11	- - -	- - -	- -	3800	- - -	- - -	- - -	- -	- -
17 S 9 E 12.422	7-20-54	- - -	- - -	- -	1720	- - -	- - -	2150	- -	- -
17 S 9 E 12.422	5-18-55	- - -	- - -	- -	- - -	1100	934	2210	7.1	19.4
17 S 9 E 12.433	10-16-54	- - -	6.3	- -	- - -	870	694	1850	- -	- -
17 S 9 E 13.244	12-23-54	.30	5.2	- -	980	586	442	1380	- -	- -
17 S 9 E 13.244	12-24-54	.30	5.2	- -	980	586	442	1380	- -	- -
17 S 9 E 13.244	12-24-54	.30	5.6	- -	938	543	425	1330	- -	- -
17 S 9 E 13.400	- -11	- - -	- - -	- -	821	- - -	- - -	- - -	- -	- -
17 S 9 E 14.422	4- 7-54	- - -	- - -	- -	- - -	840	672	1830	- -	- -
17 S 9 E 15.240	- -11	- - -	- - -	- -	11640	- - -	- - -	- - -	- -	- -
17 S 9 E 23.310	- -11	- - -	- - -	- -	2140	- - -	- - -	- - -	- -	- -
17 S 9 E 23.310A	- -11	- - -	- - -	- -	3760	- - -	- - -	- - -	- -	- -
17 S 9 E 23.333	10-19-54	- - -	- - -	- -	- - -	2420	- - -	4720	- -	- -
17 S 9 E 23.333	10-20-54	- - -	- - -	- -	- - -	5750	- - -	15800	- -	- -
17 S 9 E 23.431	10- 8-54	- - -	- - -	- -	- - -	740	- - -	1700	- -	- -
17 S 9 E 23.431	10- 9-54	.60	7.9	- -	1270	730	603	1700	- -	- -
17 S 9 E 23.431	10- 9-54	- - -	- -	- -	- - -	1220	- - -	2590	- -	- -
17 S 9 E 24.142	11-29-54	- - -	- - -	- -	- - -	590	- - -	1410	- -	- -
17 S 9 E 24.142	11-29-54	.20	7.6	- -	978	611	454	1410	- -	- -
17 S 9 E 24.142	11-30-54	- - -	- - -	- -	- - -	532	- - -	1320	- -	- -
17 S 9 E 24.222	12- 2-54	.30	1.8	- -	622	418	220	908	- -	- -
17 S 9 E 24.222	12- 2-54	- - -	- - -	- -	- - -	424	262	983	- -	- -
17 S 9 E 24.222	12- 3-54	- - -	- - -	- -	- - -	416	218	894	- -	- -
17 S 9 E 24.342	5-16-55	.20	1.4	- -	607	436	259	920	7.3	- -
17 S 9 E 24.342	4-17-61	.30	2.1	- -	648	442	264	961	7.3	20.0
17 S 9 E 24.342	2- 7-63	.30	1.8	- -	619	428	250	927	7.4	20.0
17 S 9 E 24.342	9-24-66	.20	2.1	- -	624	438	258	954	7.1	22.8
17 S 9 E 24.343	4-30-55	.20	3.0	- -	688	541	358	1020	7.3	- -
17 S 9 E 24.343	4-17-61	.40	2.7	- -	671	450	274	987	7.3	20.0
17 S 9 E 24.343	2- 6-63	.40	2.7	- -	675	454	282	1000	7.3	20.0
17 S 9 E 24.343	9-17-66	.30	3.0	- -	673	460	286	1020	7.7	21.1
17 S 9 E 25.111	4-14-54	- - -	2.4	- -	- - -	500	302	1100	- -	- -
17 S 9 E 25.112	5- -53	- - -	- - -	- -	798	570	- - -	- - -	- -	- -
17 S 9 E 25.123	12- 8-54	- - -	- - -	- -	- - -	440	- - -	1020	- -	- -
17 S 9 E 25.123	12- 9-54	.30	4.7	- -	736	456	304	1070	- -	- -
17 S 9 E 25.123	12- 9-54	- - -	- - -	- -	- - -	435	- - -	1070	- -	- -
17 S 9 E 25.132	6- -53	- - -	- - -	- -	730	510	- - -	- - -	- -	- -
17 S 9 E 25.200	- -11	- - -	- - -	- -	1363	- - -	- - -	- - -	- -	- -
17 S 9 E 25.212	5-25-55	20.00	1.4	- -	525	416	238	810	7.3	- -

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
17 S 9 E 25.212	4-17-61	-	236	18.0	0.	96.0	34.0	34	221	0	221	36.00
17 S 9 E 25.212	2- 6-63	-	236	20.0	0.	100.0	35.0	- - - -	216	0	227	36.00
17 S 9 E 25.212	9-23-66	-	236	21.0	0.	92.0	38.0	32	220	0	210	38.00
17 S 9 E 25.213	8- 9-54	-	243	- - -	- - -	95.0	38.0	41	227	- - -	238	34.00
17 S 9 E 25.213	4-17-61	-	243	20.0	0.	100.0	370.0	35	219	0	231	38.00
17 S 9 E 25.213	9-25-66	-	243	- - -	0.	95.0	41.0	45	220	0	249	42.00
17 S 9 E 25.213	3- 6-69	-	243	21.0	.01	100.0	39.0	38	217	0	245	41.00
17 S 9 E 25.222	8-16-55	-	271	- - -	- - -	80.0	40.0	31	223	- - -	212	30.00
17 S 9 E 25.222	4-17-61	-	271	19.0	.10	97.0	36.0	33	217	0	272	44.00
17 S 9 E 25.222	2- 6-63	-	271	20.0	0.	98.0	34.0	34	216	0	223	35.00
17 S 9 E 25.222	9-23-66	-	271	21.0	0.	96.0	37.0	35	216	0	224	40.00
17 S 9 E 25.300	- -11	-	45	- - -	- - -	197.0	94.0	106	301	- - -	689	104.00
17 S 9 E 25.324	11- 2-54	-	517	19.0	- - -	81.0	39.0	68	179	- - -	281	48.00
17 S 9 E 25.324	11- 2-54	169-	512	- - -	- - -	- - -	- - -	- - - -	179	0	300	48.00
17 S 9 E 25.324	11- 3-54	65-	80	- - -	- - -	- - -	- - -	- - - -	226	0	325	107.00
17 S 9 E 25.343	4-17-61	-		23.0	0.	102.0	40.0	31	218	0	249	34.00
17 S 9 E 25.343	2- 5-63	-		23.0	0.	107.0	39.0	49	213	0	288	41.00
17 S 9 E 25.343A	4-17-61	-		22.0	.01	98.0	41.0	41	221	0	259	34.00
17 S 9 E 25.343A	2- 5-63	-		23.0	0.	105.0	40.0	42	210	0	271	43.00
17 S 9 E 25.444	11-22-54	251-	307	19.0	- - -	48.0	23.0	184	184	0	203	176.00
17 S 9 E 25.444	11-23-54	64-	83	23.0	- - -	122.0	52.0	148	262	0	298	222.00
17 S 9 E 26.200	- -11	-	46	- - -	- - -	186.0	119.0	127	- - -	134	728	177.00
17 S 9 E 26.242	2-10-66	-		- - -	- - -	- - -	- - -	- - - -	- - -	- - -	344	136.00
17 S 9 E 26.414	12-15-54	189-	312	- - -	- - -	- - -	- - -	- - - -	183	0	270	41.00
17 S 9 E 26.414	12-16-54	55-	75	- - -	- - -	- - -	- - -	- - - -	252	0	275	45.00
17 S 9 E 26.431	10-24-54	41-	100	- - -	- - -	- - -	- - -	- - - -	210	- - -	1200	160.00
17 S 9 E 26.431	10-25-54	100-	209	- - -	- - -	- - -	- - -	- - - -	194	- - -	700	125.00
17 S 9 E 35.242	5-20-54	-	298	22.0	- - -	110.0	51.0	40	223	- - -	299	53.00
17 S 9 E 35.332	4- -53	-	100	15.0	- - -	190.0	134.0	- - - -	- - -	- - -	511	112.00
17 S 9 E 35.332	4- 8-54	-	100	- - -	- - -	- - -	- - -	76	187	- - -	505	104.00
17 S 9 E 35.444	8-23-54	-	297	36.0	- - -	95.0	48.0	59	20	- - -	32	41.00
17 S 9 E 36.414	12-15-54	-	312	26.0	- - -	69.0	37.0	63	183	- - -	240	41.00
17 S 10 E 6.132	1-15-49	-	210	- - -	- - -	253.0	125.0	147	200	- - -	919	235.00
17 S 10 E 6.311	4- 6-54	-	140	- - -	- - -	- - -	- - -	68	201	- - -	592	161.00
17 S 10 E 18.424	3- 9-48	-	128	- - -	- - -	103.0	46.0	46	260	- - -	279	28.00
17 S 10 E 18.424A	3-17-49	-	244	- - -	- - -	93.0	38.0	36	228	- - -	211	41.00
17 S 10 E 18.424A	3-17-66	-	244	- - -	- - -	93.0	38.0	36	228	0	211	41.00
17 S 10 E 18.432	6- 2-53	-	250	- - -	- - -	94.0	48.0	14	178	- - -	255	36.00
17 S 10 E 18.432A	5-20-54	-	261	39.0	- - -	92.0	41.0	41	226	- - -	248	30.00
17 S 10 E 18.434	4-10-53	-	250	- - -	- - -	89.0	45.0	12	197	- - -	224	27.00
17 S 10 E 18.442	3-11-53	-	190	- - -	- - -	96.0	43.0	4	205	- - -	210	27.00
17 S 10 E 18.442A	5-16-55	-	250	20.0	- - -	85.0	39.0	29	228	- - -	202	26.00
17 S 10 E 18.442A	4-17-61	-	250	19.0	.01	93.0	34.0	29	226	0	198	29.00
17 S 10 E 18.442A	2- 6-63	-	250	- - -	0.	94.0	33.0	29	224	0	198	30.00
17 S 10 E 18.442A	9-24-66	-	250	20.0	0.	91.0	37.0	33	222	0	212	32.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
17 S 9 E 25.212	4-17-61	.30	1.6	- -	540	380	199	817	7.3	20.0
17 S 9 E 25.212	2- 6-63	.40	2.0	- -	560	394	217	846	7.3	18.3
17 S 9 E 25.212	9-23-66	.30	2.4	- -	542	386	206	831	7.5	21.1
17 S 9 E 25.213	8- 9-54	- - -	1.2	- -	559	393	207	862	7.8	- -
17 S 9 E 25.213	4-17-61	.30	1.4	- -	571	408	220	862	7.4	20.0
17 S 9 E 25.213	9-25-66	.30	1.7	- -	604	404	224	891	8.1	20.0
17 S 9 E 25.213	3- 6-69	.20	1.6	- -	593	410	232	887	7.4	20.0
17 S 9 E 25.222	8-16-55	- - -	1.5	- -	510	379	196	805	7.8	- -
17 S 9 E 25.222	4-17-61	.40	1.7	- -	550	392	214	840	7.2	20.0
17 S 9 E 25.222	2- 6-63	.30	1.6	- -	552	386	209	833	7.4	20.0
17 S 9 E 25.222	9-23-66	.30	2.1	- -	561	392	215	857	7.5	21.1
17 S 9 E 25.308	- -11	- - -	- - -	- -	1463	- - -	- - -	- - -	- -	- -
17 S 9 E 25.324	11- 2-54	6.80	2.5	- -	627	362	216	946	7.8	- -
17 S 9 E 25.324	11- 2-54	- - -	- - -	- -	- - -	234	- - -	946	- -	- -
17 S 9 E 25.324	11- 3-54	- - -	- - -	- -	- - -	300	- - -	1260	- -	- -
17 S 9 E 25.343	4-17-61	.40	1.8	- -	588	420	242	884	7.4	20.0
17 S 9 E 25.343	2- 5-63	.40	1.7	- -	654	428	254	952	7.3	20.0
17 S 9 E 25.343A	4-17-61	.40	1.6	- -	506	412	231	903	7.4	20.0
17 S 9 E 25.343A	2- 5-63	.40	1.8	- -	629	426	254	930	7.5	20.0
17 S 9 E 25.444	11-22-54	.90	.8	- -	745	214	64	1230	- -	- -
17 S 9 E 25.444	11-23-54	.20	2.4	- -	997	518	304	1570	- -	- -
17 S 9 E 26.288	- -11	- - -	- - -	- -	1680	- - -	- - -	- - -	- -	- -
17 S 9 E 26.242	2-10-66	- - -	- - -	- -	- - -	- - -	- - -	1340	- -	- -
17 S 9 E 26.414	12-15-54	- - -	- - -	- -	- - -	330	238	868	- -	- -
17 S 9 E 26.414	12-16-54	- - -	- - -	- -	- - -	450	244	984	- -	- -
17 S 9 E 26.431	10-24-54	- - -	- - -	- -	- - -	1400	- - -	2730	- -	- -
17 S 9 E 26.431	10-25-54	- - -	- - -	- -	- - -	830	- - -	1790	- -	- -
17 S 9 E 35.242	5-20-54	.20	2.0	- -	687	464	302	1010	- -	- -
17 S 9 E 35.332	4- -53	- - -	- - -	- -	850	600	- - -	- - -	7.1	- -
17 S 9 E 35.332	4- 8-54	- - -	- - -	- -	- - -	600	507	1460	- -	- -
17 S 9 E 35.444	8-23-54	.60	1.0	- -	703	434	268	1010	- -	- -
17 S 9 E 36.414	12-15-54	.60	1.4	- -	586	324	174	868	- -	- -
17 S 10 E 6.132	1-15-49	- - -	15.0	- -	1790	1140	981	2440	7.8	- -
17 S 10 E 6.311	4- 6-54	- - -	- - -	- -	- - -	860	696	1760	- -	18.9
17 S 10 E 18.424	3- 9-48	.60	.6	- -	631	446	233	958	- -	- -
17 S 10 E 18.424A	3-17-49	- - -	1.8	- -	533	368	201	832	7.8	- -
17 S 10 E 18.424A	3-17-66	- - -	1.8	- -	533	368	201	832	7.8	- -
17 S 10 E 18.432	6- 2-53	- - -	2.8	- -	535	434	286	844	7.6	- -
17 S 10 E 18.432A	5-20-54	3.60	.1	- -	599	398	213	889	- -	- -
17 S 10 E 18.434	8-10-53	- - -	.2	- -	494	407	246	788	7.9	- -
17 S 10 E 18.442	3-11-53	- - -	.7	- -	482	416	248	774	7.7	- -
17 S 10 E 18.442A	5-16-55	.20	.6	- -	514	373	186	783	7.3	- -
17 S 10 E 18.442A	4-17-61	.30	.8	- -	514	370	185	784	7.3	20.0
17 S 10 E 18.442A	2- 6-63	.30	1.1	- -	515	370	186	785	7.4	20.0
17 S 10 E 18.442A	9-24-66	.30	1.1	- -	535	378	196	805	7.4	21.7

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
17 S 10 E 18.443	5-18-53	-	251	- - -	- - -	95.0	45.0	10	218	- - -	216	29.00
17 S 10 E 19.111	9- -11	-		- - -	- - -	186.0	86.0	111	260	- - -	481	244.00
17 S 10 E 19.112	8-17-53	-	251	- - -	- - -	106.0	51.0	29	221	- - -	296	34.00
17 S 10 E 19.112A	6-24-53	-	243	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	44.00
17 S 10 E 19.113	5-25-55	-	175	13.0	- - -	87.0	37.0	27	228	- - -	189	30.00
17 S 10 E 19.113	4-17-61	-	175	18.0	.01	97.0	36.0	30	221	0	213	36.00
17 S 10 E 19.113	2- 7-63	-	175	13.0	0.	100.0	35.0	34	218	0	224	37.00
17 S 10 E 19.113	9-23-66	-	175	19.0	0.	94.0	38.0	31	222	0	209	40.00
17 S 10 E 19.121	12-27-48	-	140	- - -	- - -	120.0	51.0	32	230	- - -	322	38.00
17 S 10 E 19.121A	5-17-55	-	260	24.0	- - -	139.0	62.0	39	230	- - -	325	111.00
17 S 10 E 19.121A	4-17-61	-	260	20.0	.01	159.0	64.0	37	225	0	346	136.00
17 S 10 E 19.121A	5- 8-62	-	260	21.0	0.	136.0	45.0	- - -	224	0	313	71.00
17 S 10 E 19.121A	2- 8-63	-	260	22.0	0.	125.0	41.0	41	229	0	297	51.00
17 S 10 E 19.121A	3-10-64	-	260	22.0	0.	111.0	45.0	42	216	0	280	56.00
17 S 10 E 19.121A	9-23-66	-	260	21.0	0.	134.0	60.0	- - -	236	0	407	64.00
17 S 10 E 19.122	2-21-50	-	215	- - -	- - -	94.0	43.0	27	230	- - -	229	30.00
17 S 10 E 19.123	5-16-55	-	240	22.0	- - -	87.0	42.0	26	230	- - -	206	30.00
17 S 10 E 19.123	4-17-61	-	240	20.0	.02	100.0	38.0	30	227	0	209	45.00
17 S 10 E 19.123	5- 9-62	-	240	20.0	0.	102.0	34.0	33	222	0	226	35.00
17 S 10 E 19.123	2- 8-63	-	240	21.0	0.	102.0	34.0	35	220	0	229	36.00
17 S 10 E 19.123	3- 5-64	-	240	21.0	0.	108.0	41.0	34	224	0	206	34.00
17 S 10 E 19.123	9-16-66	-	240	21.0	0.	105.0	44.0	19	26	0	214	52.00
17 S 10 E 19.141	2- 2-53	-	370	- - -	- - -	93.0	40.0	22	223	- - -	216	26.00
17 S 10 E 19.141	4-17-61	-	370	21.0	.04	102.0	41.0	34	224	0	215	61.00
17 S 10 E 19.141	2- 8-63	-	370	21.0	.03	102.0	34.0	37	215	0	224	44.00
17 S 10 E 19.141	9-16-66	-	370	21.0	0.	107.0	94.0	36	218	0	215	85.00
17 S 10 E 19.142	5-23-55	-	253	23.0	- - -	268.0	143.0	2	104	- - -	321	605.00
17 S 10 E 19.144	5-16-55	-	205	21.0	- - -	95.0	43.0	31	244	- - -	223	34.00
17 S 10 E 19.144	4-17-61	-	205	22.0	.01	178.0	68.0	34	221	0	357	169.00
17 S 10 E 19.144	2- 7-63	-	205	21.0	0.	152.0	54.0	44	216	0	317	92.00
17 S 10 E 19.144	3- 5-64	-	205	22.0	.01	174.0	74.0	45	224	0	418	151.00
17 S 10 E 19.144	3-15-66	-	205	22.0	0.	173.0	69.0	41	217	0	428	124.00
17 S 10 E 19.144	9-16-66	-	205	22.0	0.	192.0	78.0	50	224	0	482	154.00
17 S 10 E 19.214	4- 1-48	-	140	- - -	- - -	101.0	43.0	26	237	- - -	243	26.00
17 S 10 E 19.234	4-24-53	-	250	- - -	- - -	122.0	49.0	24	235	- - -	292	42.00
17 S 10 E 19.241	4- 1-53	-	250	- - -	- - -	102.0	46.0	22	234	- - -	242	33.00
17 S 10 E 29.314	4- 6-54	-	222	- - -	- - -	- - -	- - -	46	224	- - -	398	44.00
17 S 10 E 30.130	3- 8-48	-	213	- - -	- - -	66.0	36.0	24	64	- - -	251	36.00
17 S 10 E 31.411	2- 5-63	-		22.0	0.	111.0	41.0	46	208	0	288	49.00
17 S 10 E 31.411	9-24-66	-		21.0	0.	104.0	45.0	43	208	0	276	53.00
17 S 10 E 31.412	2- 5-63	-		21.0	0.	116.0	40.0	48	216	0	294	49.00
17 S 10 E 31.424	9-27-66	-		22.0	0.	88.0	40.0	95	208	0	322	58.00
17 S 10 E 31.432	3- 4-64	-		21.0	0.	112.0	46.0	52	211	0	315	54.00
17 S 10 E 31.432	9-25-66	-		23.0	0.	100.0	46.0	44	212	0	282	47.00
17 S 10 E 31.442	9-24-66	-		21.0	0.	110.0	44.0	91	214	0	299	53.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
17 S 10 E 18.443	5-18-53	- - -	.2	- -	502	422	244	827	7.2	- -
17 S 10 E 19.111	9- -11	- - -	- - -	- -	1363	- - -	- - -	- - -	- -	- -
17 S 10 E 19.112	8-17-53	- - -	- - -	- -	626	474	293	962	7.4	- -
17 S 10 E 19.112A	6-24-53	- - -	- - -	- -	- - -	- - -	- - -	- - -	7.7	- -
17 S 10 E 19.113	5-25-55	.20	1.5	- -	505	369	182	771	7.3	- -
17 S 10 E 19.113	4-17-61	.30	2.4	- -	542	392	211	824	7.3	20.0
17 S 10 E 19.113	2- 7-63	.30	1.3	- -	558	392	214	839	7.3	20.0
17 S 10 E 19.113	9-23-66	.20	3.2	- -	543	392	210	838	7.5	21.1
17 S 10 E 19.121	12-27-48	- - -	1.7	- -	678	509	320	1010	- -	- -
17 S 10 E 19.121A	5-17-55	.40	2.3	- -	816	602	414	1230	7.6	- -
17 S 10 E 19.121A	4-17-61	.40	2.5	- -	876	660	476	1330	7.4	25.6
17 S 10 E 19.121A	5- 8-62	.20	1.3	- -	738	524	340	1100	7.3	- -
17 S 10 E 19.121A	2- 8-63	.20	1.2	- -	691	480	292	1010	7.3	20.0
17 S 10 E 19.121A	3-10-64	.30	2.8	- -	665	460	283	997	7.2	20.0
17 S 10 E 19.121A	9-23-66	.20	1.6	- -	863	582	388	1270	7.2	22.2
17 S 10 E 19.122	2-21-50	- - -	1.1	- -	537	412	223	833	7.9	- -
17 S 10 E 19.123	5-16-55	.20	.8	- -	527	390	201	807	7.5	- -
17 S 10 E 19.123	4-17-61	.30	.9	- -	555	404	218	851	7.4	20.0
17 S 10 E 19.123	5- 9-62	.20	1.1	- -	560	396	214	848	7.1	- -
17 S 10 E 19.123	2- 8-63	.40	1.4	- -	567	396	216	861	7.4	20.0
17 S 10 E 19.123	3- 5-64	.20	.3	- -	530	380	196	810	7.6	- -
17 S 10 E 19.123	9-16-66	.30	1.5	- -	568	442	257	887	7.6	21.7
17 S 10 E 19.141	2- 2-53	- - -	.9	- -	508	396	214	819	7.2	- -
17 S 10 E 19.141	4-17-61	.30	1.3	- -	586	422	238	910	7.3	20.0
17 S 10 E 19.141	2- 8-63	.30	2.1	- -	570	394	218	855	7.4	20.0
17 S 10 E 19.141	9-16-66	.30	2.8	- -	618	448	270	989	7.4	21.7
17 S 10 E 19.142	5-23-55	.40	5.4	- -	1004	1200	1150	2610	7.8	- -
17 S 10 E 19.144	5-16-55	.20	.8	- -	568	414	214	862	7.4	- -
17 S 10 E 19.144	4-17-61	.30	6.2	- -	946	725	544	1450	7.1	20.0
17 S 10 E 19.144	2- 7-63	.20	3.3	- -	844	600	423	1230	7.2	20.0
17 S 10 E 19.144	3- 5-64	.20	4.7	- -	999	738	554	1490	7.3	20.0
17 S 10 E 19.144	3-15-66	.20	4.7	- -	969	714	536	1440	7.5	20.0
17 S 10 E 19.144	9-16-66	.30	6.4	- -	1090	800	616	1590	7.3	21.1
17 S 10 E 19.214	4- 1-48	- - -	.8	- -	556	427	233	840	7.5	- -
17 S 10 E 19.234	4-24-53	- - -	2.2	- -	647	506	314	997	7.5	- -
17 S 10 E 19.241	4- 1-53	- - -	.8	- -	561	444	254	873	7.5	- -
17 S 10 E 29.314	4- 6-54	- - -	- - -	- -	- - -	560	376	1150	- -	- -
17 S 10 E 30.130	3- 8-48	.10	- - -	- -	445	312	260	716	- -	- -
17 S 10 E 31.411	2- 5-63	.70	2.7	- -	662	444	274	981	7.4	20.0
17 S 10 E 31.411	9-24-66	.50	5.6	- -	650	445	274	991	7.8	25.0
17 S 10 E 31.412	2- 5-63	.60	3.0	- -	678	452	275	1000	7.4	20.0
17 S 10 E 31.424	9-27-66	.60	1.2	- -	729	384	214	1090	7.8	25.0
17 S 10 E 31.432	3- 4-64	.50	1.7	- -	706	468	295	1040	7.4	20.0
17 S 10 E 31.432	9-25-66	.50	1.9	- -	648	440	266	960	7.6	25.0
17 S 10 E 31.442	9-24-66	.50	1.6	- -	685	455	280	1030	7.5	25.0

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
17 S 10 E 31.444	9-15-66	-		21.0	0.	117.0	49.0	50	214	0	324	60.00
17 S 10 E 32.111	9-24-66	-		21.0	.01	148.0	63.0	57	200	0	453	74.00
17 S 10 E 32.113	3- 6-64	-		22.0	.01	118.0	49.0	52	208	0	342	53.00
17 S 10 E 32.113	9-16-66	-		21.0	0.	114.0	53.0	39	210	0	316	56.00
17 S 10 E 32.243	7-14-66	660-	715	- - -	- - -	152.0	83.0	66	226	0	493	117.00
17 S 10 E 32.243	7-26-66	1160-	1245	- - -	- - -	53.0	25.0	166	231	0	240	110.00
17 S 10 E 32.243	8- 2-66	1624-	1842	- - -	- - -	38.0	12.0	457	258	0	731	102.00
17 S 10 E 32.243	9-20-66	-		22.0	0.	122.0	54.0	68	222	0	370	74.00
17 S 10 E 32.243	9-21-66	315-	1200	- - -	- - -	121.0	56.0	63	228	0	364	71.00
17 S 11 E 34.412	7- 7-60	-		8.1	.01	119.0	10.0	3	384	0	20	4.00
17 S 11 E 34.412	7-28-64	-		7.1	0.	118.0	12.0	4	391	0	22	4.20
17 S 11 E 34.412	9-23-66	-		9.1	0.	116.0	13.0	5	385	0	24	9.00
17 S 11 E 34.412A	5-15-52	-		7.7	.02	111.0	14.0	5	387	0	18	5.00
17 S 11 E 34.412A	7- 7-60	-		7.3	0.	119.0	7.1	2	361	0	23	4.60
17 S 11 E 34.412A	7-28-64	-		6.2	.01	122.0	5.2	6	354	0	27	9.00
17 S 11 E 34.412A	9-23-66	-		7.7	0.	120.0	5.2	3	360	0	31	8.00
18 S 7 E 11.443	9- -68	-		68.0	- - -	492.0	402.0	638	136	0	3520	348.00
18 S 7 E 14.330	9- -11	-	9	- - -	- - -	539.0	335.0	261	183	- - -	2769	188.00
18 S 8 E 5.431	9- 5-26	889-	892	- - -	- - -	719.0	192.0	1926	117	- - -	2970	2540.00
18 S 8 E 5.431	- -29	889-	892	50.0	- - -	759.0	288.0	- - - -	- - -	- - -	3033	3450.00
18 S 8 E 5.431	3-29-35	889-	892	3.6	- - -	947.0	89.0	- - - -	- - -	- - -	3115	2880.00
18 S 8 E 5.431	3-30-54	889-	892	- - -	- - -	- - -	- - -	- - - -	128	- - -	- - -	2670.00
18 S 8 E 5.431	8-12-64	889-	892	- - -	- - -	- - -	1662.0	2100	78	32	2150	4218.00
18 S 8 E 12.113	4- 8-54	-	40	- - -	- - -	- - -	- - -	550	86	- - -	2070	865.00
18 S 9 E 1.200	- -11	-	71	- - -	- - -	108.0	54.0	83	- - -	114	330	100.00
18 S 9 E 1.400	- -11	-	82	- - -	- - -	180.0	107.0	69	- - -	108	421	239.00
18 S 9 E 10.443	9- -11	-	35	- - -	- - -	312.0	294.0	392	- - -	- - -	1811	566.00
18 S 9 E 10.443	4- 1-54	-	40	- - -	- - -	- - -	- - -	441	200	- - -	1720	520.00
18 S 9 E 11.144	9- -68	-		35.0	- - -	480.0	326.0	443	224	- - -	1830	1000.00
18 S 9 E 11.213	9- -68	-	100	39.0	- - -	99.0	52.0	53	236	0	306	44.00
18 S 9 E 11.400	- -11	-	50	- - -	- - -	204.0	179.0	286	- - -	111	1183	321.00
18 S 9 E 11.412	2- 9-66	-		- - -	- - -	- - -	- - -	- - - -	- - -	- - -	302	43.00
18 S 9 E 13.431	9- -11	-	103	- - -	- - -	216.0	116.0	150	244	- - -	827	199.00
18 S 9 E 14.300	- -11	-		- - -	- - -	156.0	97.0	126	- - -	125	558	194.00
18 S 9 E 23.442	3-23-55	-		- - -	- - -	- - -	- - -	- - - -	222	- - -	1390	302.00
18 S 9 E 26.311	9- -11	-	50	- - -	- - -	611.0	304.0	829	- - -	- - -	3016	953.00
18 S 9 E 26.311	4- 7-54	-	100	- - -	- - -	- - -	- - -	618	156	- - -	2690	1060.00
18 S 9 E 27.422	8-27-68	-		68.0	- - -	610.0	311.0	753	146	- - -	2610	- - - -
18 S 9 E 36.222	9- -68	-	91	14.0	- - -	242.0	169.0	127	106	0	1210	162.00
18 S 10 E 6.224	5- 9-62	-		20.0	0.	128.0	51.0	53	215	0	358	66.00
18 S 10 E 6.224	3- 4-64	-		20.0	.01	130.0	48.0	58	215	0	361	66.00
18 S 10 E 6.224	9-24-66	-		20.0	0.	128.0	52.0	56	216	0	366	68.00
18 S 10 E 6.241	4- 6-54	-	154	- - -	- - -	- - -	- - -	48	220	- - -	380	69.00
18 S 10 E 7.200	- -11	-	65	- - -	- - -	168.0	93.0	209	- - -	177	782	104.00
18 S 10 E 18.224	2-15-66	-		- - -	- - -	- - -	- - -	- - - -	- - -	- - -	464	85.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMOHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
17 S 10 E 31.444	9-15-66	.50	1.5	- -	728	492	316	1090	7.4	23.3
17 S 10 E 32.111	9-24-66	.50	.2	- -	931	530	466	1330	7.5	23.9
17 S 10 E 32.113	3- 6-64	.50	5.3	- -	744	494	324	1080	7.4	20.0
17 S 10 E 32.113	9-16-66	.50	5.9	- -	708	502	330	1100	7.7	24.4
17 S 10 E 32.243	7-14-66	.50	.1	- -	1060	720	- - -	1570	8.2	- -
17 S 10 E 32.243	7-26-66	.60	.7	- -	761	236	- - -	1160	8.4	- -
17 S 10 E 32.243	8- 2-66	4.50	9.7	- -	1870	144	- - -	2180	8.2	- -
17 S 10 E 32.243	9-20-66	.50	1.3	- -	821	526	344	1210	7.9	26.7
17 S 10 E 32.243	9-21-66	.50	1.2	- -	810	532	- - -	1200	7.2	- -
17 S 11 E 34.412	7- 7-60	.20	2.3	- -	355	338	24	614	7.2	10.0
17 S 11 E 34.412	7-28-64	.10	2.6	- -	362	344	24	623	7.6	10.0
17 S 11 E 34.412	9-23-66	.10	3.6	- -	369	344	30	629	7.8	10.6
17 S 11 E 34.412A	5-15-52	.20	1.7	- -	352	324	18	599	7.4	- -
17 S 11 E 34.412A	7- 7-60	.10	4.1	- -	345	326	30	593	7.3	10.0
17 S 11 E 34.412A	7-28-64	.10	7.8	- -	357	326	36	612	7.7	10.0
17 S 11 E 34.412A	9-23-66	0.	4.9	- -	363	336	41	623	7.3	10.0
18 S 7 E 11.443	9- -68	- - -	.6	- -	5540	2860	2778	6110	7.1	- -
18 S 7 E 14.330	9- -11	- - -	- - -	- -	4804	- - -	- - -	- - -	- -	- -
18 S 8 E 5.431	9- 5-26	- - -	- - -	- -	8406	2585	- - -	- - -	- -	- -
18 S 8 E 5.431	- -29	- - -	- - -	- -	7580	- - -	- - -	- - -	- -	- -
18 S 8 E 5.431	3-29-35	- - -	- - -	- -	9111	- - -	- - -	- - -	- -	- -
18 S 8 E 5.431	3-30-54	- - -	- - -	- -	- - -	- - -	- - -	11700	- -	- -
18 S 8 E 5.431	8-12-64	- - -	- - -	- -	10240	- - -	- - -	16000	7.1	- -
18 S 8 E 12.113	4- 8-54	- - -	- - -	- -	- - -	2250	2180	5510	- -	- -
18 S 9 E 1.200	- -11	- - -	- - -	- -	788	- - -	- - -	- - -	- -	- -
18 S 9 E 1.400	- -11	- - -	- - -	- -	1468	- - -	- - -	- - -	- -	- -
18 S 9 E 10.443	9- -11	- - -	- - -	- -	3751	- - -	- - -	- - -	- -	- -
18 S 9 E 10.443	4- 1-54	- - -	- - -	- -	- - -	1730	1570	4280	- -	- -
18 S 9 E 11.144	9- -68	- - -	6.3	- -	4230	2540	2360	- - -	7.3	- -
18 S 9 E 11.213	9- -68	- - -	.7	- -	710	400	266	1030	7.5	- -
18 S 9 E 11.400	- -11	- - -	- - -	- -	2724	- - -	- - -	- - -	- -	- -
18 S 9 E 11.412	2- 9-66	- - -	- - -	- -	- - -	- - -	- - -	1020	- -	- -
18 S 9 E 13.431	9- -11	- - -	- - -	- -	1804	- - -	- - -	- - -	- -	- -
18 S 9 E 14.300	- -11	- - -	- - -	- -	1452	- - -	- - -	- - -	- -	- -
18 S 9 E 23.442	3-23-55	- - -	- - -	- -	- - -	1510	1330	3300	7.8	- -
18 S 9 E 26.311	9- -11	- - -	- - -	- -	6912	- - -	- - -	- - -	- -	- -
18 S 9 E 26.311	4- 7-54	- - -	- - -	- -	- - -	3040	2950	6860	- -	- -
18 S 9 E 27.422	8-27-68	- - -	77.0	- -	5590	2800	2680	7130	7.3	23.0
18 S 9 E 36.222	9- -68	- - -	.4	- -	1980	1300	1210	2500	7.1	- -
18 S 10 E 6.224	5- 9-62	.40	1.5	- -	784	528	352	1160	7.2	- -
18 S 10 E 6.224	3- 4-64	.50	1.5	- -	791	522	346	1150	7.4	20.0
18 S 10 E 6.224	9-24-66	.50	1.7	- -	798	535	358	1190	7.2	23.9
18 S 10 E 6.241	4- 6-54	- - -	- - -	- -	- - -	570	390	1210	- -	- -
18 S 10 E 7.200	- -11	- - -	- - -	- -	1648	- - -	- - -	- - -	- -	- -
18 S 10 E 18.224	2-15-66	- - -	- - -	- -	- - -	- - -	- - -	1390	- -	- -

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA) + POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
18 S 10 E 28.141	5- 7-44	-	93	- - -	- - -	92.0	49.0	36	218	- - -	253	45.00
18 S 10 E 28.400	- -11	-	180	- - -	- - -	114.0	57.0	43	- - -	111	323	67.00
18 S 10 E 30.242	3-25-55	-		- - -	- - -	- - -	- - -	- - - -	218	- - -	1200	700.00
18 S 10 E 31.221	3-25-55	-		- - -	- - -	- - -	- - -	- - - -	225	- - -	747	152.00
18 S 10 E 35.313	3-25-55	-		- - -	- - -	- - -	- - -	- - - -	207	- - -	251	39.00
19 S 6 E 14.100	- -11	-	253	- - -	- - -	416.0	94.0	435	- - -	53	2009	139.00
19 S 6 E 21.434	4-23-63	-	208	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	5740	558.00
19 S 7 E 5.300	- -11	-	60	- - -	- - -	443.0	437.0	1400	- - -	139	4834	487.00
19 S 10 E 4.124	3-25-55	-		- - -	- - -	- - -	- - -	- - - -	229	- - -	273	61.00
19 S 10 E 17.233	5- -44	-	150	- - -	- - -	64.0	48.0	68	170	- - -	255	70.00
21 S 9 E 2.000	- -11	-		- - -	- - -	44.0	16.0	113	- - -	79	198	58.00
21 S 9 E 35.200	- -11	-	526	- - -	- - -	372.0	269.0	1080	- - -	48	2097	1506.00
22 S 6 E 8.414	8-18-61	281-	300	35.0	- - -	360.0	180.0	1900	194	- - -	4910	350.00
22 S 6 E 8.414	9- -61	-	478	- - -	- - -	670.0	336.0	1963	147	58	5760	728.00
22 S 6 E 8.414	9- 7-61	-	1010	40.0	- - -	455.0	478.0	3340	317	0	8730	708.00
22 S 6 E 8.414	10-30-61	-	478	- - -	- - -	- - -	- - -	- - - -	318	- - -	8830	704.00
22 S 6 E 8.414	9- -64	-	478	- - -	- - -	405.0	505.0	4102	77	10	10270	745.00
22 S 8 E 3.000	- -11	-	251	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	- - -
22 S 8 E 24.300	- -11	-	961	- - -	- - -	167.0	128.0	1358	- - -	294	1420	1333.00
22 S 9 E 22.300	- -11	-	540	- - -	- - -	124.0	72.0	617	- - -	120	890	579.00
23 S 6 E 35.100	3-30-53	423-	458	- - -	- - -	- - -	- - -	- - - -	41	0	1410	6710.00
23 S 6 E 35.100	3-30-53	584-	650	- - -	- - -	- - -	- - -	- - - -	35	0	1460	8010.00
24 S 7 E 34.144	7-13-53	400-	447	14.0	.01	22.0	2.8	340	96	0	387	232.00
25 S 6 E 4.110	3-31-53	489-	514	24.0	0.	1250.0	262.0	824	36	0	1210	3390.00
25 S 6 E 20.343	4-29-53	-	440	39.0	.09	132.0	33.0	131	91	0	50	438.00
25 S 6 E 28.444	4-17-53	389-	421	35.0	0.	298.0	106.0	485	92	0	779	940.00
25 S 6 E 28.444	4-18-53	438-	470	20.0	0.	314.0	92.0	440	96	0	571	1020.00
25 S 6 E 28.444	4-19-53	500-	542	30.0	0.	384.0	110.0	433	53	0	663	1120.00
25 S 6 E 28.444	4-19-53	563-	585	12.0	0.	214.0	56.0	333	69	0	410	720.00
25 S 6 E 28.444	4-20-53	603-	645	24.0	0.	452.0	109.0	512	49	0	212	1720.00
25 S 6 E 28.444	4-28-53	672-	710	26.0	0.	760.0	163.0	685	35	0	211	2700.00
25 S 7 E 10.121	- -	-	441	11.0	- - -	27.0	2.4	390	76	- - -	310	380.00
25 S 8 E 32.333	1-29-57	-	745	53.0	- - -	403.0	80.0	2530	240	- - -	859	4060.00
26 S 6 E 23.332	1- 4-57	310-	380	20.0	- - -	116.0	43.0	279	84	- - -	215	550.00
26 S 6 E 34.130	9-23-35	-	332	- - -	- - -	70.0	17.0	133	98	0	38	290.00
26 S 7 E 1.241	10- 7-56	400-	435	9.2	- - -	20.0	4.3	386	133	- - -	363	294.00
26 S 7 E 1.241	10- 8-56	400-	435	- - -	- - -	- - -	- - -	- - - -	234	- - -	- - -	280.00
26 S 7 E 1.241	10-10-56	435-	465	- - -	- - -	- - -	- - -	- - - -	115	- - -	- - -	508.00
26 S 7 E 1.241	10-18-56	435-	465	14.0	- - -	31.0	5.5	367	115	- - -	85	502.00
26 S 7 E 1.241	10-23-56	465-	504	18.0	- - -	29.0	4.7	386	86	- - -	133	505.00
26 S 7 E 1.241	12- 6-56	-	504	44.0	- - -	9.8	9.5	401	223	- - -	99	445.00
26 S 7 E 32.122	3-19-53	585-	610	5.3	0.	113.0	26.0	543	59	0	622	610.00
26 S 7 E 32.122	3-20-53	715-	740	14.0	0.	34.0	5.7	340	81	0	70	505.00
26 S 7 E 32.122	3-22-53	855-	881	21.0	0.	90.0	5.5	- - - -	47	0	44	950.00
26 S 7 E 32.122	8- 3-53	-	435	21.0	.01	160.0	52.0	668	86	0	901	710.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
18 S 10 E 28.141	5- 7-44	- - -	3.6	- -	586	431	252	947	- -	- -
18 S 10 E 28.400	- -11	- - -	- - -	- -	752	- - -	- - -	- - -	- -	- -
18 S 10 E 30.242	3-25-55	- - -	- - -	- -	- - -	2010	1830	3980	7.2	- -
18 S 10 E 31.221	3-25-55	- - -	- - -	- -	- - -	1010	826	1970	7.9	- -
18 S 10 E 35.313	3-25-55	- - -	- - -	- -	- - -	465	296	862	7.5	- -
19 S 6 E 12.100	- -11	- - -	- - -	- -	3484	- - -	- - -	- - -	- -	- -
19 S 6 E 21.434	4-23-63	- - -	- - -	- -	- - -	- - -	- - -	18000	- -	- -
19 S 7 E 5.300	- -11	- - -	- - -	- -	8967	- - -	- - -	- - -	- -	- -
19 S 10 E 4.124	3-25-55	- - -	- - -	- -	- - -	518	322	1010	7.4	- -
19 S 10 E 17.233	5- -44	- - -	1.8	- -	590	357	218	932	- -	- -
21 S 9 E 2.888	- -11	- - -	- - -	- -	531	- - -	- - -	- - -	- -	- -
21 S 9 E 35.200	- -11	- - -	- - -	- -	5805	- - -	- - -	- - -	- -	- -
22 S 6 E 8.414	8-18-61	1.58	4.1	- -	7840	1640	1480	8890	8.2	- -
22 S 6 E 8.414	9- -61	- - -	- - -	- -	9662	- - -	- - -	- - -	- -	- -
22 S 6 E 8.414	9- 7-61	6.40	.3	- -	13900	3100	2840	14900	- -	- -
22 S 6 E 8.414	10-30-61	- - -	- - -	- -	- - -	3170	2910	15000	7.4	25.6
22 S 6 E 8.414	9- -64	- - -	- - -	- -	16110	- - -	- - -	- - -	- -	- -
22 S 8 E 3.000	- -11	- - -	- - -	- -	2015	- - -	- - -	- - -	- -	- -
22 S 8 E 24.300	- -11	- - -	- - -	- -	4776	- - -	- - -	- - -	- -	- -
22 S 9 E 22.300	- -11	- - -	- - -	- -	2528	- - -	- - -	- - -	- -	- -
23 S 6 E 35.100	3-30-53	- - -	- - -	- -	- - -	7950	- - -	19000	6.5	- -
23 S 6 E 35.100	3-30-53	- - -	- - -	- -	- - -	8950	- - -	225	6.6	- -
24 S 7 E 34.144	7-13-53	1.10	.5	.3	1050	66	- - -	1800	7.7	- -
25 S 6 E 4.110	3-31-53	0.	- - -	- -	7000	4200	- - -	11000	6.7	- -
25 S 6 E 20.343	4-29-53	.40	6.3	- -	875	465	- - -	1640	7.5	- -
25 S 6 E 28.444	4-17-53	.40	4.2	.3	2690	1180	- - -	4150	7.5	- -
25 S 6 E 28.444	4-18-53	.48	3.5	.3	2510	1160	- - -	4130	7.4	- -
25 S 6 E 28.444	4-19-53	6.08	2.0	.2	2770	1410	- - -	4470	7.3	- -
25 S 6 E 28.444	4-19-53	.28	.2	.3	1780	764	- - -	1780	7.2	- -
25 S 6 E 28.444	4-20-53	0.	1.0	.3	3050	1500	- - -	5490	7.1	- -
25 S 6 E 28.444	4-28-53	0.	- - -	- -	4560	2570	- - -	8240	7.1	- -
25 S 7 E 10.121	- -	.90	2.0	- -	1160	78	15	2350	7.6	- -
25 S 8 E 32.333	1-29-57	4.70	- - -	- -	8980	1330	1140	14500	6.8	61.1
25 S 6 E 23.332	1- 4-57	.60	3.6	- -	1420	406	398	2310	7.5	22.2
26 S 6 E 34.130	9-23-35	- - -	5.2	- -	602	245	- - -	- - -	- -	- -
26 S 7 E 1.241	10- 7-56	1.50	1.2	- -	1140	68	0	1930	7.9	50.0
26 S 7 E 1.241	10- 8-56	- - -	- - -	- -	- - -	96	0	1940	7.7	- -
26 S 7 E 1.241	10-18-56	- - -	- - -	- -	- - -	130	36	1990	7.3	- -
26 S 7 E 1.241	10-18-56	2.40	1.8	- -	1070	100	6	1960	7.7	- -
26 S 7 E 1.241	10-23-56	3.60	1.6	- -	1120	42	22	2050	8.0	- -
26 S 7 E 1.241	12- 6-56	1.60	1.2	- -	1170	47	0	2030	7.7	- -
26 S 7 E 32.122	3-19-53	.30	0.	.2	1950	389	- - -	3210	7.3	- -
26 S 7 E 32.122	3-20-53	.70	0.	35.0	1010	108	- - -	1930	7.4	- -
26 S 7 E 32.122	3-22-53	1.00	0.	.4	1680	247	- - -	3220	7.3	- -
26 S 7 E 32.122	5- 3-53	.58	1.0	.2	2550	613	- - -	3890	7.6	- -

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY, NEW MEXICO - Continued

LOCA.	WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
26 S	7 E 35.230	8-10-35	-	401	- - -	- - -	- - -	- - -	- - - -	176	- - -	- - -	91.00
26 S	8 E 2.131	12- 6-56	547-	597	10.0	- - -	119.0	40.0	458	126	- - -	680	450.00
26 S	8 E 2.131	12-12-56	635-	705	8.6	- - -	223.0	95.0	480	162	- - -	1210	420.00
26 S	8 E 3.332	- -45	-	451	58.0	- - -	542.0	108.0	- - - -	- - -	- - -	820	6590.00
26 S	8 E 32.111	6-21-53	645-	690	8.7	.03	119.0	17.0	889	53	0	163	1450.00
26 S	8 E 32.111	6-22-53	775-	820	17.0	.02	534.0	61.0	2850	62	0	611	5030.00
26 S	8 E 33.120	9-11-52	-	300	34.0	- - -	50.0	12.0	83	134	0	136	41.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

OTERO COUNTY - Concluded

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
26 S 7 E 35.230	8-10-35	- - -	- - -	- -	- - -	33	- - -	- - -	- -	- -
26 S 8 E 2.131	12- 6-56	1.10	1.2	- -	1870	462	358	2890	7.6	20.6
26 S 8 E 2.131	12-12-56	1.40	2.4	- -	2620	947	814	3590	7.6	- -
26 S 8 E 5.332	- -45	- - -	80.0	- -	8740	220	- - -	- - -	- -	71.1
26 S 8 E 32.111	6-21-53	.98	.5	.3	2670	367	- - -	4860	7.4	- -
26 S 8 E 32.111	6-22-53	.30	- - -	- -	9130	1580	- - -	15100	7.3	- -
26 S 8 E 33.120	9-11-52	.60	54.0	- -	485	174	- - -	715	8.1	- -

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

SIERRA COUNTY, NEW MEXICO

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
10 S 4 E 31.244	9- 7-60	-	37	- - -	- - -	- - -	- - -	- - - -	282	- - -	726	219.00
10 S 5 E 17.431	5-31-55	-	50	- - -	- - -	- - -	- - -	- - - -	295	- - -	528	128.00
11 S 4 E 27.241	7-21-60	-	125	21.0	- - -	247.0	105.0	89	331	- - -	715	154.00
11 S 4 E 29.141	9- 1-60	-		- - -	- - -	- - -	- - -	- - - -	351	- - -	586	153.00
11 S 6 E 10.200	- -11	-	300	- - -	- - -	389.0	126.0	2273	- - -	129	1347	3412.00
12 S 2 E 27.211	5-26-54	-		34.0	- - -	101.0	67.0	47	394	- - -	198	70.00
12 S 2 E 35.434	7-24-56	-		23.0	- - -	- - -	- - -	49	390	- - -	509	49.00
12 S 5 E 25.300	11- -11	-		- - -	- - -	262.0	106.0	- - - -	- - -	- - -	890	1216.00
12 S 5 E 28.432	5- 6-64	334-	359	21.0	- - -	134.0	52.0	961	140	0	1010	1040.00
12 S 5 E 31.434	12-11-64	530-	540	15.0	- - -	85.0	40.0	64	204	0	232	62.00
13 S 5 E 22.300	11- -11	-		- - -	- - -	611.0	154.0	1506	115	- - -	1476	2626.00
14 S 5 E 8.300	- -	-	70	- - -	- - -	347.0	211.0	1299	- - -	- - -	963	2360.00
15 S 5 E 19.134	5-22-57	-	73	22.0	- - -	208.0	249.0	601	520	- - -	516	1340.00
15 S 5 E 19.300	- -11	-	75	- - -	- - -	350.0	229.0	783	- - -	140	995	1587.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

SIERRA COUNTY, NEW MEXICO - Concluded

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
10 S 4 E 31.244	9- 7-60	- - -	- - -	- -	- - -	- - -	- - -	2210	7.3	- -
10 S 5 E 17.431	5-31-55	- - -	- - -	- -	1290	920	678	1690	7.4	20.0
11 S 4 E 27.241	7-21-60	.80	12.0	- -	1510	1050	778	2010	7.3	20.0
11 S 4 E 29.141	9- 1-60	- - -	- - -	- -	- - -	870	582	1890	7.5	- -
11 S 6 E 10.200	- -11	- - -	- - -	- -	8768	- - -	- - -	- - -	- -	- -
12 S 2 E 27.211	5-26-54	.20	2.9	- -	714	528	204	1100	7.7	20.0
12 S 2 E 35.434	7-24-56	.50	8.8	- -	1150	820	500	1500	7.6	22.2
12 S 3 E 25.300	11- -11	- - -	- - -	- -	3468	- - -	- - -	- - -	- -	- -
12 S 5 E 28.432	5- 6-64	- - -	.5	- -	3290	548	434	5150	7.6	- -
12 S 5 E 31.434	12-11-64	1.60	18.0	- -	618	376	209	967	8.2	- -
13 S 5 E 22.300	11- -11	- - -	- - -	- -	8308	- - -	- - -	- - -	- -	- -
14 S 5 E 8.300	- -	- - -	- - -	- -	6168	- - -	- - -	- - -	- -	- -
15 S 5 E 19.134	5-22-57	1.10	1.4	- -	3190	1540	1120	5420	7.3	18.3
15 S 5 E 19.300	- -11	- - -	- - -	- -	4441	- - -	- - -	- - -	- -	- -

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

SOCORRO COUNTY, NEW MEXICO

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SiO2)	IRON (Fe)	CALCIUM (Ca)	MAGNESIUM (Mg)	SODIUM (Na)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (Cl)
1 S 8 E 1.433	8- 3-58	-	673	21.0	- - -	340.0	171.0	13	278	- - -	1250	34.00
1 S 8 E 3.121	3-13-57	-	875	7.3	- - -	584.0	233.0	231	66	0	2490	47.00
1 S 8 E 7.332	8- 8-57	-	583	- - -	- - -	483.0	113.0	0	288	0	1220	35.00
1 S 8 E 9.310	3-13-57	-	618	- - -	- - -	- - -	- - -	- - - -	149	0	881	14.00
1 S 8 E 9.310	8- 8-57	-	618	10.0	- - -	150.0	37.0	0	194	0	395	14.00
1 S 8 E 11.322	3-12-57	-	842	- - -	- - -	- - -	- - -	- - - -	278	0	1680	3.00
1 S 8 E 21.431	8- 2-58	-	883	13.0	- - -	476.0	188.0	3	157	0	1400	34.00
6 S 5 E 36.343	2-16-55	-	388	27.0	- - -	78.0	22.0	33	195	- - -	169	23.00
6 S 6 E 9.334	8- 3-55	-	31	24.0	- - -	123.0	24.0	31	448	- - -	83	17.00
6 S 6 E 10.411	3-17-55	-	18	21.0	- - -	93.0	25.0	22	356	- - -	60	12.00
6 S 6 E 24.424	2-25-54	-	315	7.1	- - -	38.0	36.0	429	298	45	398	300.00
6 S 6 E 24.424	8-13-56	-	315	- - -	- - -	- - -	- - -	- - - -	488	18	342	231.00
6 S 6 E 26.333	3- 8-55	-	285	11.0	- - -	72.0	74.0	183	418	0	156	- - - -
6 S 6 E 26.333	12-10-55	-	285	10.0	- - -	79.0	74.0	123	414	0	186	48.00
6 S 6 E 26.333	12-11-55	-	285	10.0	- - -	81.0	71.0	120	414	0	159	52.00
6 S 6 E 26.333	12-11-55	-	285	11.0	- - -	83.0	71.0	120	408	0	196	54.00
6 S 6 E 26.333	12-11-55	-	285	10.0	- - -	83.0	71.0	123	411	0	161	54.00
6 S 6 E 34.224	2-23-56	-	218	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	31.00
6 S 6 E 34.224	3-13-56	-	210	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	55.00
6 S 6 E 34.224	3-16-56	-	210	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	- - -	- - - -
6 S 6 E 34.224	8-16-56	-	213	- - -	- - -	- - -	- - -	249	506	0	126	51.00
6 S 6 E 34.224	12-10-56	-	213	- - -	- - -	- - -	- - -	- - - -	488	0	- - -	122.00
6 S 6 E 34.224	7- 5-57	-	213	7.2	- - -	14.0	7.6	331	624	33	124	52.00
6 S 8 E 21.000	- -11	-	732	- - -	- - -	361.0	76.0	83	- - -	149	1020	55.00
6 S 8 E 34.241	3-31-53	-	660	- - -	- - -	- - -	- - -	71	214	0	1930	76.00
6 S 8 E 34.241	7-24-56	-	663	17.0	- - -	544.0	164.0	68	283	- - -	1950	75.00
7 S 7 E 4.222	2-25-54	-		16.0	- - -	176.0	93.0	322	386	- - -	1180	66.00
7 S 7 E 18.444	7-18-55	-	160	13.0	- - -	7.5	4.0	326	477	- - -	285	65.00
7 S 8 E 8.322	10-31-56	-	713	- - -	- - -	- - -	- - -	- - - -	- - -	- - -	1970	93.00
7 S 8 E 8.322	11-23-56	-	713	19.0	- - -	596.0	183.0	28	190	0	1910	92.00
7 S 8 E 8.322	10-16-57	-	713	16.0	.05	576.0	172.0	6	98	0	1870	92.00
7 S 8 E 8.412	9-13-56	-	782	16.0	0.	635.0	209.0	10	234	0	2050	94.00
7 S 8 E 8.412	9-15-56	-	782	- - -	- - -	- - -	- - -	- - - -	284	0	- - -	91.00
7 S 8 E 14.323	2-26-54	-	780	18.0	- - -	538.0	225.0	146	92	0	2310	67.00
7 S 8 E 22.223	11-22-56	-	630	3.0	- - -	- - -	- - -	142	44	0	2010	110.00
7 S 8 E 29.144	6-24-55	-	378	- - -	- - -	- - -	- - -	- - - -	387	- - -	670	90.00
7 S 8 E 34.322	11-22-56	-	675	15.0	- - -	- - -	- - -	56	181	0	2220	88.00
8 S 5 E 32.431	5-31-55	-	230	31.0	- - -	117.0	37.0	35	162	0	382	48.00
8 S 5 E 32.431	5-11-56	-	230	31.0	- - -	117.0	34.0	33	159	0	382	47.00
8 S 5 E 32.431	8- 8-56	-	228	- - -	- - -	- - -	- - -	- - - -	162	0	- - -	44.00
8 S 5 E 32.431	8- 9-56	-	230	19.0	- - -	118.0	34.0	28	160	0	296	45.00
8 S 5 E 32.431	5- 9-57	-	230	20.0	- - -	115.0	34.0	34	159	0	299	48.00
9 S 5 E 15.143	6-29-53	-	160	- - -	- - -	73.0	33.0	27	306	0	86	10.00
9 S 5 E 15.143	8-12-53	-	160	22.0	.02	61.0	31.0	43	284	0	87	15.00
9 S 5 E 15.143	3-29-55	-	160	25.0	- - -	68.0	34.0	45	289	0	84	12.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

SOCORRO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
1 S 8 E 1.433	8- 3-56	.20	3.6	- -	1970	- - -	1550	2270	- -	- -
1 S 8 E 3.121	3-13-57	1.90	.3	- -	3550	2220	2160	3660	7.2	- -
1 S 8 E 7.332	6- 8-57	.60	2.0	- -	1800	1470	1310	2150	7.3	- -
1 S 8 E 9.318	3-13-57	- - -	- - -	- -	- - -	558	436	953	7.5	- -
1 S 8 E 9.318	6- 8-57	1.10	5.6	- -	713	546	428	986	7.5	- -
1 S 8 E 11.322	3-12-57	- - -	- - -	- -	- - -	1960	1730	2770	7.6	- -
1 S 8 E 21.431	8- 2-56	.80	1.5	- -	2120	1630	1500	2350	- -	- -
6 S 5 E 36.343	2-16-55	1.00	17.0	- -	498	265	185	654	8.2	- -
6 S 6 E 9.334	3- 3-55	2.00	1.6	- -	528	486	45	810	7.7	- -
6 S 6 E 10.411	3-17-55	.60	1.2	- -	418	335	44	677	7.8	18.8
6 S 6 E 24.424	2-25-54	2.30	.7	- -	1398	223	0	2260	- -	- -
6 S 6 E 24.424	8-13-56	- - -	- - -	- -	- - -	- - -	2010	- - -	8.4	29.8
6 S 6 E 26.333	3- 8-55	.20	161.0	- -	834	484	140	1310	7.8	15.6
6 S 6 E 26.333	12-10-55	1.40	173.0	- -	851	489	158	1320	7.4	14.4
6 S 6 E 26.333	12-11-55	1.40	170.0	- -	862	494	154	1320	7.4	- -
6 S 6 E 26.333	12-11-55	- - -	161.0	- -	865	499	162	1320	7.4	- -
6 S 6 E 26.333	12-11-55	1.40	173.0	- -	864	499	162	1330	7.4	- -
6 S 6 E 34.224	2-23-56	- - -	112.0	- -	- - -	- - -	- - -	1180	- -	14.4
6 S 6 E 34.224	3-13-56	- - -	1.4	- -	- - -	- - -	- - -	1490	- -	15.8
6 S 6 E 34.224	3-16-56	- - -	- - -	- -	- - -	- - -	- - -	1260	- -	- -
6 S 6 E 34.224	3-16-56	3.60	3.0	- -	- - -	163	0	1250	8.4	15.8
6 S 6 E 34.224	12-10-56	- - -	.3	- -	- - -	34	0	1650	7.9	- -
6 S 6 E 34.224	7- 5-57	2.60	.2	- -	875	56	0	1410	8.3	- -
6 S 8 E 21.888	- -11	- - -	- - -	- -	1911	- - -	- - -	- - -	- -	- -
6 S 8 E 33.241	3-31-53	- - -	2.2	- -	3220	2140	1960	3150	- -	- -
6 S 8 E 33.241	7-24-56	- - -	1.4	- -	2970	2160	1990	3160	- -	- -
7 S 7 E 3.222	2-25-54	1.80	1.9	- -	1950	822	571	2930	- -	- -
7 S 7 E 10.444	7-10-55	7.80	.5	- -	883	35	0	1410	8.2	- -
7 S 8 E 0.322	10-31-56	1.40	5.8	- -	- - -	- - -	- - -	3220	- -	- -
7 S 8 E 0.322	11-23-56	1.60	5.4	- -	2920	2240	2080	3160	7.1	20.6
7 S 8 E 0.322	10-10-57	1.80	4.5	- -	2780	2140	2070	3150	7.4	18.1
7 S 8 E 8.412	9-13-56	1.80	2.4	- -	3130	2440	2250	3350	7.5	- -
7 S 8 E 8.412	9-15-56	- - -	- - -	- -	- - -	2360	2190	3280	7.1	- -
7 S 8 E 14.323	2-26-54	1.90	.2	- -	3340	2260	2190	3720	- -	- -
7 S 8 E 22.223	11-22-56	1.80	13.0	- -	- - -	2080	1960	3370	7.3	- -
7 S 8 E 23.144	6-24-55	- - -	- - -	- -	- - -	968	643	2110	7.8	28.8
7 S 8 E 34.322	11-22-56	1.80	261.0	- -	- - -	2600	2520	3720	8.1	- -
8 S 5 E 32.431	5-31-55	1.80	4.3	- -	655	444	312	949	7.6	21.7
8 S 5 E 32.431	5-11-56	1.80	8.3	- -	655	448	316	940	7.4	21.1
8 S 5 E 32.431	8- 8-56	- - -	- - -	- -	- - -	- - -	- - -	938	7.6	21.1
8 S 5 E 32.432	3- 8-56	.80	6.7	- -	632	451	320	936	7.8	21.1
8 S 5 E 32.434	5- 9-57	1.80	7.4	- -	666	444	313	940	7.5	21.1
9 S 5 E 19.143	6-20-53	- - -	27.0	- -	406	310	87	647	7.3	- -
9 S 5 E 19.143	8-12-53	.50	23.0	- -	429	288	37	665	- -	- -
9 S 5 E 19.143	3-29-55	60.00	55.0	- -	458	298	52	696	2.4	18.3

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

SOCORRO COUNTY, NEW MEXICO - Continued

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
9 S 5 E 15.143	5-13-55	-	160	30.0	- - -	54.0	33.0	52	308	0	91	10.00
9 S 5 E 15.143	6- 2-55	-	160	19.0	- - -	52.0	32.0	57	296	0	94	11.00
9 S 5 E 15.143	8-19-55	-	160	23.0	- - -	75.0	39.0	21	301	0	63	12.00
9 S 5 E 15.143	4-11-56	-	160	30.0	- - -	62.0	34.0	39	289	0	86	10.00
9 S 5 E 15.143	7- 9-56	-	160	22.0	- - -	56.0	29.0	59	296	0	94	11.00
9 S 5 E 15.143	2- 8-58	-	160	23.0	- - -	63.0	34.0	29	286	0	77	11.00
9 S 5 E 15.143	2-17-58	-	160	24.0	- - -	67.0	26.0	35	280	0	84	12.00
9 S 5 E 34.313	4-11-56	-	175	- - -	- - -	- - -	- - -	84	0	0	2210	- - - -
9 S 5 E 34.313	4-11-56	-	175	- - -	.11	- - -	- - -	- - - -	10	0	2200	33.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

SOCORRO COUNTY, NEW MEXICO - Concluded

LOCATION WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
9 S 5 E 15.143	5-13-55	.60	33.0	- -	452	270	24	716	7.6	18.3
9 S 5 E 15.143	6- 2-55	.60	33.0	- -	445	261	18	711	7.6	18.9
9 S 5 E 15.143	8-19-55	.40	79.0	- -	460	348	101	- - -	7.4	18.3
9 S 5 E 15.143	4-11-56	.60	46.0	- -	45	294	58	684	7.5	18.3
9 S 5 E 15.143	7- 9-56	.60	37.0	- -	455	258	16	715	7.6	18.9
9 S 5 E 15.143	2- 8-58	.20	36.0	- -	414	297	62	672	- -	- -
9 S 5 E 15.143	2-17-58	1.00	17.0	- -	387	274	44	609	7.8	- -
9 S 5 E 34.313	4-11-56	- - -	- - -	- -	- - -	2130	- - -	3190	4.5	- -
9 S 5 E 34.313	4-11-56	- - -	- - -	- -	- - -	2300	- - -	3180	6.8	- -

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Continued

TORRANCE COUNTY, NEW MEXICO

LOCAL WELL NUMBER	DATE OF COLLECTION	DEPTH FROM	DEPTH TO	SILICA (SIO2)	IRON (FE)	CALCIUM (CA)	MAGNESIUM (MG)	SODIUM (NA)+ POTASSIUM (K)	BICARBONATE (HCO3)	CARBONATE (CO3)	SULFATE (SO4)	CHLORIDE (CL)
1 N 7 E 26.332	3-11-57	-	741	- - -	- - -	- - -	- - -	- - - -	860	- - -	1430	- - - -
1 N 8 E 4.222	8- 2-50	-	520	7.8	- - -	336.0	150.0	12	110	0	1320	11.00
1 N 8 E 31.000	10- -11	-	88	- - -	- - -	78.0	22.0	27	- - -	117	112	22.00
1 N 8 E 33.210	6- 7-57	-	600	9.1	- - -	157.0	64.0	- - - -	13	0	615	21.00
1 N 8 E 33.421	3-13-57	-	55	10.0	- - -	57.0	14.0	20	220	0	45	4.00

Table 4.--Chemical analyses of water from wells in the Tularosa Basin - Concluded

TORRANCE COUNTY - Concluded

LOCAL WELL NUMBER	DATE OF COLLECTION	FLUORIDE (F)	NITRATE (NO3)	BORON (B)	DISSOLVED SOLIDS	CALCIUM MAGNESIUM HARDNESS	NON-CARBONATE HARDNESS	SPECIFIC CONDUCTANCE (MICROMOHOS) 25 DEG C)	PH	TEMPERATURE (DEG C)
1 N 7 E 26.332	3-11-57	8.00	- - -	- -	- - -	- - -	- - -	2320	- -	12.8
1 N 8 E 4.222	8- 2-50	.60	.2	- -	1890	1460	1370	2170	- -	- -
1 N 8 E 31.000	10- -11	- - -	- - -	- -	392	- - -	- - -	- - -	- -	- -
1 N 8 E 33.210	6- 7-57	1.10	.2	- -	887	654	644	1160	6.1	- -
1 N 8 E 33.421	3-13-57	.40	7.2	- -	284	196	15	455	7.8	- -

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